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COTTON

Vol. 94 September, 1930 No. 11

Research *in* Textiles

PERHAPS one reason Research has not developed further in the textile industry is that discussions of it oftentimes have seemed to the practical executive as remote from his individual problems. Another possibility is that the application of Research to the industry is nearer to achievement because of the growing spirit of co-operative activity among mills, in many ways. The present article tells what has been accomplished to date, in the form of research organization, and points to some of the major possibilities for research, in different phases of the industry.—THE EDITOR.

IF A MAN is to become a benefactor of humanity by making two blades of grass grow where one grew before, he certainly cannot proceed better today than by the scientific method. The conquest of natural forces, whether in agriculture or industry, advanced slowly at first, because knowledge had to be gathered by individual experiment. But accumulated knowledge has spread tremendously and there is a wealth of available scientific information upon which to base individual experiment today. It is so broadcast that any industry is lost without recourse thereto and in steadily increasing intensity.

All around are current evidences of what may be done through scientific research. Two notable cases of the moment outside the textile industry offer something for the imagination of cotton manufacturers. In both, the case of two blades of grass is actually duplicated. On the one hand, the Standard Oil Company of New Jersey is about ready to operate a process capable of yielding two barrels of gasoline where only one has been extracted heretofore. In the second case, the Guggenheim process for nitrate extraction, which will ultimately be employed universally in the Chilean industry, enables the recovery of twice as much nitrate as now produced.

Not long ago the following little article appeared in a Philadelphia paper:

"Two factories in New Jersey make cotton belting. One factory discovered that its competitor's belts lasted six per cent longer—a tremendous trade handicap. That was a puzzle, since both plants used the same kind of cotton in their product. But a machine belt needs something besides cotton and that something is a proper dressing.

"Belt dressings are trade secrets like the formulae for mixing snuff and other concoctions. Then the factory whose belts were inferior sent for a chemist. Instead of a dozen ingredients in the belt dressing he used but two. Presto, a miracle! The new belt beat the competitor exactly 200 per cent and it was cheaper to make than the old, inferior belt. That's how science can step into an industry and show it how to erase the red ink for its ledgers."

Both inside and outside, it is recognized that research has been sadly neglected by the textile industry. Only recently "*Industrial and Engineering Chemistry*," organ of the American Chemical Society, said that "at last the textile industry is to take research seriously." Last March, when it was reported that the American Association of Textile Chemists and Colorists had set the machinery in motion for the organization of a central research bureau for the textile industry, the following statement was made:

"Probably no industry is more in need of this supply-house of facts than is the textile industry. Every technician and thinking man in the industry realizes that and, therefore, desultory attempts to establish research in pure science have been made in a dozen or more places with various degrees of success. Those who have studied the need for research the most thoroughly are convinced that the answer lies in the establishment of one central organization serving every branch and unit of the industry. A fundamental fact, if the discovery of it is to be of any value at all, must become a fact to the entire industry. It still remains the province and the problem of each unit to apply the knowledge to its individual benefit."

Altogether it is a matter for profound gratitude that a dual movement for research in the textile industry is launched on its way; the one part through the United States Institute for Textile Research and the other through the Textile Foundation, which was the occasion of much ceremony when President Hoover signed the bill for its creation for the purpose of administering in textile research the major portion of the $1,800,000 fund derived by the Textile Alliance from the sale of German reparation dyes. Here are a private institute and a Government-sponsored foundation which, in supplementary work, should do much to place the textile industry abreast of other industries that are backed by great research facilities.

As stated by Charles H. Clark, secretary-treasurer of the Institute, "If there was a textile General Electric Co., or a textile American Telephone & Telegraph Co., or a textile United States Steel, there would either be an equal number of individually controlled laboratories engaged upon fundamental textile research,

or one of the first steps of such industrial giants in entering the field would have been to head up a co-operative laboratory for such investigation. The larger the industrial unit, the more highly specialized its field, and the more modern its methods, the greater its interest and activity in fundamental and developmental research. The rewards of scientific research in such fields, and by such large units, particularly if the industries are of recent development, are reasonably certain to be prompt and valuable.

"The textile industry as a field for fundamental research is almost the direct antithesis of that just described. It is highly diversified even in each of its major branches; there have been few basic changes in its methods, processes and machines for more than half a century; its individual units are numerous, comparatively small and widely scattered; and because of the enormous amount of fundamental work to be done, there can be no certainty of immediate or early rewards of great value. But every one of these negatives is a positive argument proving that the textile industry's venture in pure research must be along cooperative lines. And, because of the present scarcity of developmental laboratories in the industry, any co-operative plan of research must give consideration to the providing of such facilities for applied research."

SINCE this article was prepared, the United States Institute for Textile Research completed its organization. P. J. Wood, of the Oriental Silk Printing Co., Haledon, N. J., was made acting president. E. N. Hood, treasurer, Pequot Mills, Salem, Mass., is first vice-president, and Thomas Talbot Clark, of the Talbot Mills, North Billerica, Mass., is second vice-president. Dr. E. H. Killheffer is treasurer and Charles H. Clark, secretary.

The executive committee consists of Messrs. Wood, Killheffer, Hood, and Clark, and E. A. Clements, Globe Knitting Works, Grand Rapids, Mich.; Cherry L. Emerson, vice-president, Robert & Co., Inc., Atlanta; and Walter C. Taylor, secretary, Southern Textile Association.

A research committee was appointed, consisting of Dr. W. F. Edwards, U. S. Testing Co.; Louis A. Olney, Lowell Textile Institute; Dr. W. E. Emley, Bureau of Standards; George H. Johnson, research director, Laundryowners' National Association; Prof. George B. Haven, M. I. T.; E. N. Hood; Cherry L. Emerson, and L. A. Hird, treasurer, Samuel Hird & Sons, Inc., Passaic, N. J.

At the time of the launching of the United States Institute for Textile Research, in May, the bill for the Textile Foundation was pending in the Senate. A resolution of the Institute then said:

"It is our mature opinion that the scientific needs of the textile industry may be most efficiently served through the utilization of this fund by keeping the principal intact and safely invested and using only the income, preferably, solely for pure research, and that as soon as the Textile Foundation Board of Trustees is completed, by appointment by the President, it shall be requested to hear our arguments in favor of these suggestions before any action is taken by it looking to the distribution of any part of the fund."

For several years the danger of neglecting pure research in favor of "subsidized industrial research" has been recognized by Mr. Hoover and other prominent men. Thus it seems highly advisable that the facilities for research in the textile industry should be carefully directed to insure both the pure and applied research points of view.

As temporary office of the Textile Foundation was announced to be at the United States Department of Commerce, the textile industry offers a new adjunct of scientific Washington. The head of the Carnegie Institution a few years ago said that Washington will always be a place of research and of higher education. Of late years the national capital has realized a great expansion in the field of research and it should be a satisfaction to find the textile industry taking its place with the Government bureaus and other organizations for such work, particularly the investigations of pure research. Without going into the distinct fields of the Textile Foundation and the United States Institute for Textile Research, it might be stated that the organizations of both as reported in the newspapers and trade periodicals embrace textile representatives who bespeak an ultimate wise course with the two projects.

Some illuminating statistics on the broad field of science in the industrial field, possibly suggestive of the future for textiles, are found in a report of growth in the last 25 years of the American Chemical Society. This organization has risen in membership from 3079 to 18,000 in the quarter-century and its budget has increased from $15,000 to $557,000. The gains in both directions have accompanied an unprecedented advance in science, according to Prof. William McPherson of Ohio State University, president of the society. This is the largest professional organization of its kind in the world.

"Chemistry and its application to industry are today adding more to the world's wealth and to the enjoyment, comfort and usefulness of mankind than any other instrument of progress," declares Prof. McPherson. "Its advancement has been due both to highly trained chemists and capital intelligently invested in industry dependent upon the guidance of the chemist." (We have recently reported an example of this dependence in textiles.—Editor).

"American chemists are masters of the science of producing dyestuffs and the artistry of dyeing textile fabrics is greater today than at any period of modern civilization," declared Lincoln Baylies, president of The National Association of Cotton Manufacturers some time ago. "With color dominating the modern home the American public has asked for colors which will be fast to light and washing. Such colors can and are being given. As chemistry has gradually given us new discoveries more satisfactory fast colors have been found. With a wide range of satisfactory colors available it seems unnecessary for any manufacturer to use dyes which will prove undesirable for the purpose for which the fabric is sold.

"Mercerizing is one of the most important developments in the finishing of cotton. It is one of the basic processes which make possible the highly styled fabrics which have made cotton once again sought after by fashionable women. When fully tested and recognized in 1895 this process opened a wide field for the use of cotton goods that had not

(*Continued on page* 1213.)

Some Observations on Large Package Spinning

From an interview with
E. E. Blake, Chief Engineer,
Saco-Lowell Shops
BY A MEMBER OF THE STAFF.

The thoughts in this analysis of large-package spinning are taken from an informal discussion of the subject with Mr. Blake, and are submitted here for the interest of readers who have been giving this matter consideration.

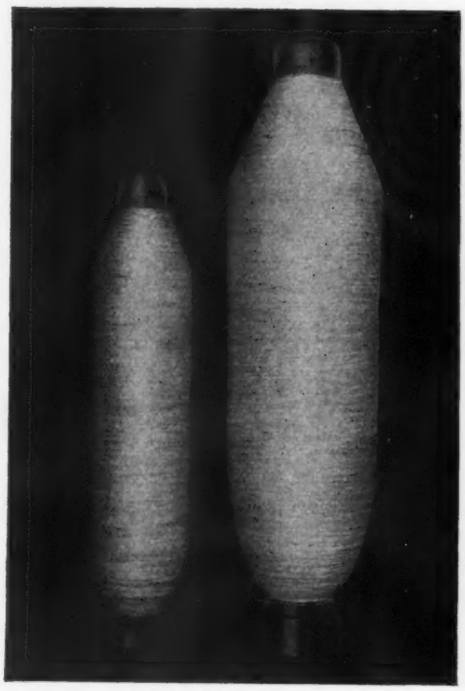
In this interview, Mr. Blake explains the purposes back of the large package idea, and tells informally of some of the results of experimentation with it.—THE EDITOR.

LARGE PACKAGE SPINNING has been the object of much inquiry of late, and this interview was arranged in the thought of contributing some information on the subject. Within the past few years, a number of factors in the industry have given thought to the development of a large package spinning, which of course means the use of larger rings than are now in use on any given number of yarn, thereby providing a larger package, with less doffing, fewer knots, more yardage, etc.

The limiting factor which has been the major problem in work along this line has been the traveler and the speed of the traveler. On 20s yarn and finer, the limitations of speed in spinning are, mainly, the wear of the traveler and of the ring from the traveler. Rings may be worn to cause bad work for many months before being utterly hopeless.

The Influence of Traveler Speed.

Now, in spinning say 100s yarn, the yarn is so tender that the weight of the traveler is very light, and such a traveler will not stand a speed of over 3,000 feet per minute. Travelers are not customarily changed periodically on 100s. They burn and fly off and new ones are put on as thus needed. When we get down to 80s yarn, we find that we can increase the weight of the traveler, and also increase its speed to say 3,500 feet per minute. Of course something depends on the length of staple with which the 80s are made, and therefore the strength of the yarn depends in turn on the weight of the travelers permissible, and this follows more or less with other numbers down the line. In this way we go down the line to 60s, 40s, 30s, and use heavier travelers as the yarn increases in diameter and strength. We find that we can use larger rings with higher traveler speeds, and consequently larger packages with *higher* traveler speeds. There is a limitation all the way down in numbers and all the way up in speeds, by the travelers.



Photo, courtesy Fales & Jenks Machine Co.

Photograph of ordinary full bobbin at left compared with large package bobbin at right.

When this was realized, and when it was understood that the heavier the traveler the higher the speed that could be obtained, then it was concluded that the greater mass of the heavier traveler absorbed the heat and gave it off without burning the traveler, as is the case with an extremely light traveler. It had been noticed that mills generally had been using 2¼-inch rings as a maximum in diameter, feeling that this was large enough or as large as they could go. At the same time, it was felt they could increase the feet per minute speed of the traveler, and it seemed that the limitation was a lack of courage to adopt a wider gauge.

Less Centrifugal Force on Large Ring.

It readily became clear that the same speed in feet per minute on a larger ring is less severe on both the traveler and the ring. The formula for centrifugal force, $\frac{w\ v^2}{g\ r}$, shows that with the same speed and same weight of traveler, the centrifugal force decreases with an increase of the radius. This, in turn, means that the same or even greater centrifugal force, may be needed to get the same drag on the traveler to wind on the yarn, which in turn means a heavier traveler; and that means a traveler that would stand a higher speed. In short, it was found that by increasing the gauge sufficiently and applying suitable separators, there was no difficulty whatever in going to

the 3-inch ring in making, say, 8s yarn, and that there was no difficulty in attaining a speed of 5,000 feet per minute with such a traveler and ring. I know of speeds in excess of 5,500 feet per minute where the mills seem to be quite satisfied. They also find, by the cutting of the yarn dragging through the traveler before it burns on the ring, that the travelers should be replaced often.

The Question of Front Roll Speed.

Another angle of approach, and another check on the problem, is the question of front roll speed. I believe there is such a thing as drawing cotton, and also such a thing as "twitching" the fibers apart. There is a limitation of speed with which fibers can be drawn smoothly and uniformly. It is also true that with too high a front roll speed, it is very difficult to piece up the ends. A tremendous amount of waste is made because of high speeds, partly because the ends are not drawn smoothly, and come down more readily, and partly because when they do come down, a tremendous amount of waste is made before the spinner gets around. I believe there are not many people who think that it is sensible to run over 185 r.p.m. front roll speed on a spinning frame.

Now, with 185 r.p.m. front roll speed, and the amount of twist which 10s warp requires, we found that the traveler speed on a 2¼-inch ring is considerably below what it could be called upon to do. Therefore, when it was found that it was satisfactory to increase the diameter of the ring to, say 3, inches, and to attain a traveler speed of 5,000 to 5,500 feet per minute, we could bring up the size of the package, for it appeared that we were not being limited by the traveler and ring on these coarse numbers as was the case on the finer numbers, and that, furthermore, we were not obliged to lower the front roll speed in order to attain a larger package. The advantages of the larger package, of course, are: a longer time between doffs, greater yardage in the package, less piecings and less knots, and saving in the spooling and other subsequent processes.

Traversing the Thread Guide.

Another check is the question of traverse. It is obviously impossible to balance the traveler perfectly with the ring rail traveling up and down. A perfect balance could be secured only by a fixed relation from the thread guide to the ring rail, and by traversing the spindle up and down. Several attempts have been made to do this, but it has always cost a good deal more than it was worth to accomplish it.

It appears that with coarser yarn and a heavier traveler, the balancing of the traveler is less delicate, and therefore a longer traverse is possible with coarser yarn; but even so, there is always a limitation. This has been assisted by applying a traversing thread board which decreases the distance from the thread guide to the ring rail when the ring rail is at the bottom of the stroke, and increases the distance from the thread guide to the ring rail when the ring rail is at the top of the stroke. That is, these distances are modified as much as possible by the traversing of the thread guide vertically. We get the equivalent of at least 1-inch longer traverse by traversing the thread guide, or, I might say, with the traversing thread guide the change in the balloon is decreased, which is the equivalent of decreasing the traverse and assisting in the balancing of the traveler. Many European mills always use the traversing thread board, no doubt for these reasons. The traversing thread board is usually applied for the longer traverses of these large packages simply because it permits a longer traverse and a larger package.

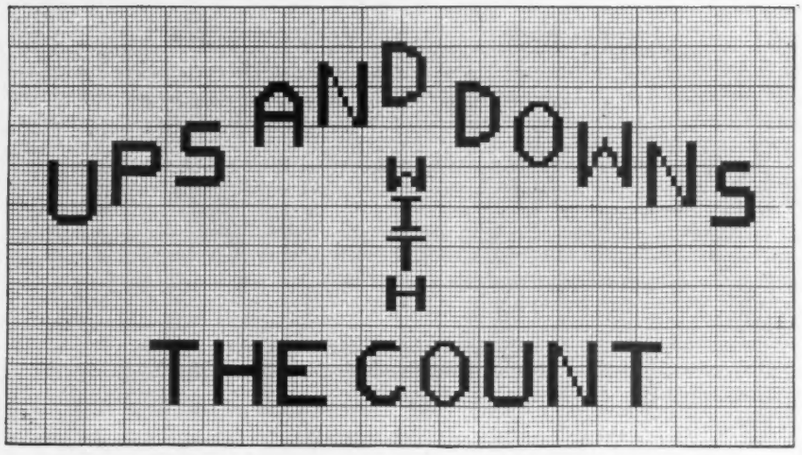
As far as the gauge of the frames is concerned, I would recommend not less than 1½-inch wider gauge than diameter of ring. With such a long traverse as 8 inches, and particularly 9 inches, a special separator is required, and while a 3-inch ring and 4-inch gauge have been run quite successfully, the ends slashed against the separator harder than was desired, and a wider gauge is preferable. Also, 5-inch gauge has been furnished with a 3-inch ring, and in that case the length of the boss of the top roll was the same as used with a 3½-inch gauge frame. This means that the weighting of the top rolls is the same as for 3½-inch gauge, and is not increased proportionately to what would be required for a proportionately long 5-inch gauge top roll. There is no need of such a long boss in any case, and therefore weight and a large amount of power may be saved.

Gauges and Separators.

We might generalize as to gauge and separators. I know that most people are using the 3½-inch gauge without separators on average numbers, but I think that many are suffering because they have not adopted the 3¾-inch gauge if they are to insist upon no separators. The ends slash just enough with the 3½-inch gauge to cause them to use heavier travelers or to suffer the consequences otherwise. We like enough gauge to avoid having the ends constantly slashing the separator, but the ballooning does not always assume the conventional uniform balloon shape. The ballooning makes all sorts of queer curves, and when the end reaches into its neighbor's zone, just a little tap will send it back to the conventional form. Therefore, with a 3¼-inch frame with, say, 1¾-inch rings, or perhaps a 2-inch ring, separators will keep the yarn where it belongs, and without injury, because the yarn is only occasionally touching, rather than constantly slashing the separator.

No "Black Art" About It.

It will be seen that there is no black art about the large package. It seems to be merely a sensible development, a case of seeing a little further along the line into the problem than we have been accustomed to doing. We were told in the past that we were going a bit too far in taking 2¼-inch rings, that rather we should be conservative and not go over 2⅛-inch. Evidently one was bold enough to go up to 3-inch and analyze the thing and try it out—or at least see what would happen. I suspect 2⅛-inch rings would be much better than 2¼-inch, on a 3-inch gauge, but because the ends would slash the separators so hard, the work would not run well.



The First of a Series of Articles on Textile Designing

IN PRESENTING this treatise on designing, the author expects to make no effort to offer you a finished literary composition—his aim is rather to give you, in one-man conversation, the information gained from the men whom he "went to school to," and the little which he has worked out for himself. This is a very accurate expression which we lint-heads have, for if the apprentice shows any interest and aptitude, and if he possesses the required affability and personality to gain him the friendship of his chief designer, he is "going to school" in the strictest sense of the word. And the author has had the good fortune to "go to school" to the cleverest and most personable men in the game.

A textile education is of great benefit to the man who is going into any branch of the game, especially to the designer. But it cannot give him everything. If the school can familiarize him with the nomenclature of the various machines, the relation of one process to the others, and what really happens to the stock between the time it "goes in the back and comes out the front," it has done the student about all that can be done for him. Then he is ready to enter the mill and get his highly technical and specialized training. And that won't take him long.

This designing is almost a state of mind; time and again something will come up which the designer has no idea of because it had never come to his attention that the necessity for doing such a thing existed. Take for example a plain weave ground which must be bordered by a five-harness satin stripe, warp ways and filling ways?

Well, he'll just have to dope it out; and some men have this knack and some men haven't. You may give them all the education in the world and they may have a high degree of intelligence, but they have to be born with the faculty of working out new problems.

But don't let this scare you off—if you stay along with the same mills or with one of a class of mills making a highly specialized fabric (towels, leno, shirtings, for example) you will have pretty much the same thing year in and year out. You won't have a cinch, but you won't be likely to get in a hole.

Now, just a word to you managers and superintendents: if your designer is not your right-hand man, either you have the wrong designer or he has the wrong boss. Of course, he has nothing to do with the picking, carding, or spinning, but from the warping on through the finishing he can do more to make the job run smoothly than anyone else in your organization. But, mind you, what is meant by "designer" is the man who decides on reed spread, the number of the reed and the ends per dent, the extent and weave of the selvage, the drawing-in of the warp on the harnesses in the least complicated fashion, the ordering of section beams in such a combination as to give the slasher tenders the least trouble, the making of dobby and box chain drafts in the most condensed form, and the many other things too numerous to mention.

There are many mills and many plans for the scope of a designer's authority and responsibility. Sometimes this is determined by the ability and qualification of the designer himself. More often it is because of the personal wish of the superintendent.

To leave the main subject for a moment, one of the chief faults of cotton mills today is the fact that while the mill has grown in physical proportions and equipment, there has been little development in the handling of the personnel and the routine of the organization. It would be like having a country blacksmith shop develop into a great machine shop and *trying to operate it the same way!*

This sounds absurd, but there are many mills capitalized in the millions of dollars which are running today almost exactly like they were forty years ago, and some of them are actually making money! If your mill is small enough, your designer can be your cost man also. This is impossible, of course, if you have a large mill on fancies and figure up to twenty-five costs per day.

To return to the authority of the designer; perhaps when the mill started it was running on osnaburgs. Then perhaps it went to duck or sheeting. Finally a little dyeing equipment was added, and we get the first touch of designing. The mill decided to make awning stripes and the "old man" figured he would lay

THIS BEGINS an extremely readable and instructive series which, in its eight articles, will cover the subject of textile designing from every angle. The present article is of an introductory nature; the next will discuss design paper, repeats, terminology, drawing-in drafts, chain plans, etc., and the third will cover classification of weaves, plain and twill weaves, etc.; and from that point the various kinds of weaves will be discussed.

The author offers to clarify any point or to discuss any subject pertaining to designing which may be submitted by readers. The style of these articles is most unusual. The author has given an interesting and entertaining treatment of a difficult subject.—THE EDITOR.

out the patterns, in what fashion Heaven only knows.

Then the mill went more and more to fancies, adding dobbies and box work. This was a little too much on the "old man" and he got a young boy to help him. Enter the young boy —enter the designer. Now this youngster, no matter how smart, knows nothing about designing except what the "old man" has taught him. And the "old man" knows only what he grovelled for himself. The kid works out some mongrel system for making lay-outs, he devises something which may be called a plan for making chain drafts and drawing-in drafts, and the help is "learned" to work from these. Well, the cloth finally gets woven after a fashion and everybody figures that they are up to the best. They don't realize how much confusion and loss of time, and uncertainty, and backtracking, and muddling of records is caused by this because they have never had a really competent designer to compare with. The kid probably goes around to the warper man, and the slasher man, and the weaver and tells them all *verbally* what should be done in order to get out a certain piece of cloth. Each one of these men does his part of the job without considering the convenience of the others, and the kid (even if he knows better than they do) has no authority to have things done as he wants them. Then this mill gets into a highly competitive market and wonders why it can't get out samples as fast and why it can't offer a finished piece of cloth as attractive and as cheap as a mill which has a bona fide designer.

The notion exists in some quarters that a designer is a highly theoretical man. Banish the thought. If he is really good he is the coldest-blooded and most practical man in your organization. It is essential that he be a good weaver and loom fixer, he should be a good warper and slasher man. This does not necessarily mean that he must have worked for long periods at these various jobs. If he has, so much the better, but he must have a working knowledge of these departments. The best designers in the world sometimes have to make changes after a warp reaches the loom. It sometimes becomes necessary for him to have the warp cut out, re-drawn, and a new chain made before he can get the result he is working for. But the more familiar he is with the workings and the limit of possibility of his machine the less of such loss will there be.

Your designer must be easy to get along with also. In every organization there is at least one overseer who bucks every time a new plan, method, or scheme is introduced. Now it will usually be the designer who introduces these innovations, because it is often necessary when putting in a new fabric to put in a new method for processing it. Your designer should be able to secure the full and hearty co-operation of all the overseers in introducing the new methods of manipulating stock and machines when a radically different fabric comes along.

This responsibility must fall on someone, and if the designer can do it then there is just so much less work on the "old man." How far shall his responsibility and authority extend? This question is quite difficult to answer because it involves two vitally different considerations, viz., the personal qualifications of the man on one side, and the physical requirements of the mill on the other. In other words, "How capable is the designer in comparison with the overseers and the superintendent?" and "How elaborate and involved are the cloths which the designer is to make?"

Somewhere in the mill will be kept the records of the various fabrics made by the mill. This information should be absolutely complete in every detail so that it is easily possible to reproduce any fabric which the mill has made at any time. This information originated in the designing department and should remain there.

Now don't misunderstand me: every overseer in the mill should preserve the complete details concerning the work done in his respective department on every style made. But the designer should keep a complete record of the whole story.

If the mill runs more than one grade of cotton, he should record what grade and staple the yarns were spun from; the number or counts of the warp and filling; the shade and the quality of the color if the yarn is dyed; the number of reed used and the ends per dent; the spread of the warp in the reed; the grey and finished width of the cloth; the number of picks per inch; the warp lay-out and filling arrangement; the number of ends in the selvage; the percentage of shrinkage and contraction; the weight of the goods; the loom or weaving basis it was figured on; the type of loom required to make it; the percentage of production figured on; and of course a copy of the dobby chain plan and the box chain plan. Later on we will publish some specimen construction sheets intended for preserving these records. For that reason we have not tried to catalogue all the information which the designer should preserve.

Plan to Be Followed in Presenting These Articles.

It will be seen how closely the work of the designer approaches the work of the cost man. It is usually a good plan to put both departments under the same head since their functions are so interrelated. If they are not under the same head, the records may be kept about equally well by either one. Enough at present for the man, now for his job.

It may be well at this time to comment on the method of presenting these articles. If they were intended as lectures in a textile school, their form and the order in which they are given would be considerably changed. For example, it is not customary to say anything about drawing-in drafts or chain plans until the student has had several lessons in making designs. However, we are assuming that the average age of our readers is above the college student age, and while we do not assume any previous knowledge of designing in him, we do go on the assumption that he is familiar with general mill operations, processes, and practices. To the man who is thoroughly familiar with highly technical designing parts of these articles will seem very elementary. To the man with no experience at all in weaving or designing, parts of the same articles will seem a little too advanced, perhaps.

Obviously, it is impossible to present the subject peculiarly for both extremes. If, however, any of you youngsters have any questions about these articles or about the subject of designing in general, we will be very glad to answer you as best we can through the columns of COTTON.

Let me take this occasion to ask you not to waste your time or ours by quibbling over trivialities. Military authorities tell us that quibbling over minor details is evidence of failing to grasp the significance of the whole subject. No two men express themselves exactly the same. Many men will not agree with us on everything we say. There are several ways of proceeding in designing. It is our aim to give you the best way that we know. Understand that our way is not the only way by any means. If you know a *better* way, we will be mighty glad to hear from you. If your way is just *another* way, don't bother us. We are not offering a finished literary composition but are merely trying to give you hard-headed lint-heads the practical side of designing. The man who is a chronic fault-finder can discover plenty in these articles to belly-ache about if he wants to. Just don't disturb us with it.

[This is the first of a series of eight articles on designing. The second, which will cover design paper, repeats, terminology, drawing-in drafts, and chain plans, will appear in an early number.—The Editor.]

Research in Textiles.

(*Continued from page* 1208.)

existed 10 to 15 years previous to that time. It is to this process that much of the world's increased consumption of cotton is due."

Mr. Baylies hereby offers an illustration of the exceedingly valuable nature of research to the cotton industry and there are constantly developing other incidents to attest the same thing. The word research covers almost as wide a field as the term welfare work, says Mr. Clark, but he expresses the belief that "the great majority are today more conscious than ever before that one of the textile industry's most vital needs is accurate scientific knowledge of the facts underlying its materials, machines, processes and operations, and of systematic, scientific research for their determination."

Pickard Visits European Organizations; Two Examples from Abroad.

Among the objects which may be achieved through the new organizations is the collection of the scientific knowledge on textiles scattered here and there through the world, of which there is considerable. The value of getting into touch with the advances in textile research abroad was immediately realized in connection with the establishment of the Textile Foundation. One of the first steps was to plan for a visit of Edward T. Pickard, chief of the textile division, Bureau of Foreign & Domestic Commerce, to the textile research organizations in England and on the Continent to find ideas for possible adoption in the United States.

Two examples from abroad, one from England and the other from Germany, indicate something of the importance of getting into touch with world-wide activities in the field of research. The bulletin of the National Association of Cotton Manufacturers reported the building of a new cotton card having 48 flats and operating with only 14 flats in contact with the cylinder surface, as the result of investigations carried out over a period of several years at the Shirley Institute. (A description of this was published on page 1017 of the July number of COTTON—Editor.) Mr. Albertus, of the Albertus Laboratorium, Berlin, is reported to have invented a process of returning to the fiber of silk certain chemical components lost in the lapse of centuries. Museum pieces become faded, moldy and brittle are reported to have been restored to the original brilliance, toughness and resiliency of as long as 1000 years ago by the process.

Scientific research is a factor in keeping textiles abreast of modern conditions of life and adapting them to new uses. The automobile industry for many years has offered a notable example and the airplane today becomes a field for study. At the meeting of the Cotton Federation in Stresa, Italy, it was urged that one way of promoting the interests of the industry at large was to appoint some eminent doctor or scientist to look into the hygienic and heat-retaining properties of cotton.

This year has brought a climax in the American staple crop itself which demands the serious consideration of research interests and the Bureau of Agricultural Economics, United States Department of Agriculture, is working on different phases of this situation. W. B. Lanham, of the Bureau, calls attention not only to the need for improvement of the staple grown, but for better handling of the cotton. Researches are needed in both the cultivation of the crop and the machinery used for its ginning.

Thus the field for research in textiles is almost limitless, extending from the production of the fiber to the distribution of the converted product to the consumer.

Budgeting Mill Supplies—
Does It Tend to Reduce Costs?

By Horace L. Pratt

TO BUDGET SUPPLIES, or not to budget them—is a subject being considered by many mills. Quite a number of plants are already using the idea in one form or another. This article by Mr. Pratt discusses the subject generally, and provides answers to many of the questions which have arisen from time to time in connection with the practice. The author has given a great deal of food for thought on the subject in this comprehensive analysis of the proposition.—THE EDITOR.

DOES BUDGETING mill supplies tend to reduce manufacturing costs? No doubt practically every manufacturer has asked himself this question. Some have gone ahead and found out for themselves. Others are waiting for their more progressive neighbors to pioneer in this field and have all the rough places removed before venturing into it.

When the Editor of COTTON asked me for a discussion of this question he stated that there seemed to be some diversity of opinion concerning the problem. To quote him verbatim, " . . . my observation is that there are two schools of thought in regard to the matter; one feels that a budget system produces economy in the use of supplies, while the other holds to the view that to budget a man tends to make him 'piece up' old supplies in order to get by and stay within his budget, this naturally producing inferior work."

Without some system of inspection, or follow-up, I would not hesitate to say that doubtless the last group would be right. I have heard of section men being accused of tying up a job with hay-wire to make it run! But I have too much faith in the rank and file of section men to believe that this would be generally true, even if every mill in the south was operating on the budget plan. Yet even the most conscientious of us need some checking up on, and this would certainly hold true as regards the subject under discussion.

Back in the days when we did not use the budget system, if a loomfixer needed some leather strapping, he got an order for ten or fifteen pounds, possibly more. He probably used two or three pounds that day and the unused portion was left lying on the workbench. Some weaver needed a razor strop, so, seeing the leather handy, proceeded to cut off a piece. The fixer, himself, was more or less careless in the use of the leather. "There is plenty at the supply room," he argued, "and the company is able to buy more when that gives out." But with the budget system operating there is a different story to tell. In the first place the section man will get only enough from the supply room to take care of his present needs, possibly only enough to last a couple of weeks. Then the leather he has left on hand he keeps locked in the workbench, along with his other supplies.

The case of the loomfixer and the leather illustrates a condition that exists all down the line, at a mill where there is no limit to the amount of supplies that a man may use. My observation is that not even the overseer himself will give the matter the attention that it should have unless there is some system employed that will serve as a check on him. Along with other methods of efficiency, the budget system, in one form or another, has come to be used by various industries and businesses to reduce their operating costs. Even our government has in the past few years come to recognize its value and has placed most of its departments and bureaus on the budget plan. So could not the textile industry profit by these examples?

I wonder how many foremen, who may read this, have been called to the office, to have the superintendent, red in the face, shove a big bill for some item of supplies under their nose and demand an explanation? They then probably stammered around and finally replied, "I'll check up and let you know." This need not occur. With a budget system the overseer will not place a requisition for any item of supplies until he feels that a need will arise within a few weeks, or place extra machine parts in stock that cannot easily be repaired in the machine shop. He will also approve every order for supplies for his department. (This of course does not apply to general supplies such as brooms, lights, etc.) Then when the articles ordered are received he will want to check up to be sure that they come up to specifications, or match the samples submitted. If everything is all right he can sign the invoice. This places the overseer in position to give an intelligent explanation regarding any order for his department; much embarrassment is thus saved.

It is a good policy never to order more than a three to six months supply of any item. In this day of rather unstable prices, and of constant changes and improvements in machinery, the reason for this is obvious. About the most worthless thing that I can think of is a dollar of the stockholders' money tied up in obsolete supplies. In this connection the budget system tends to reduce the quantity of supplies on hand, and in proportion releases that much more money for other purposes. As in the case of the loomfixer already cited, the stock of supplies of all kinds on each section throughout the mill will be materially reduced. Then gradually the same

thing will be found true of the supply room.

A word about using old supplies would not be amiss. Almost every mill has more or less old machinery that has been discarded as obsolete or worn out. This does not necessarily mean that every part of the machine is unfit for use, for the contrary is very often true. If the mill can dispose of the machine at anything like a reasonable figure, it should by all means do so. But if not, then all good bolts, nuts, screws, cold-rolled steel shaftings, or any parts in good condition that will fit machines in the mill, should be salvaged. The balance of the machine might be sold as junk. If the parts are in first-class condition the section men, at a mill on the budget plan, will need no encouragement to use them. But because of the extra work involved, very few section men will be found who will use worn or defective supplies just to stay within their budget. Some may argue that they will do this but my experience is that the section men will not use worn out parts.

When a mill installs the budget system many of the section men, even some of the foremen, will get the idea that the mill is just hard up and that the superintendent wants things patched up so that they will run and get by. This erroneous impression should be dispelled at once. It is not so much just to save that the budget system has been developed, but rather that supplies may not be wasted. But of course it is quite likely that some section man, overly anxious to make a good record, will neglect things that ought to be fixed or patch up a job so that it will run. Naturally such a section will soon run in the hole, and both the fixer and the mill will be the losers in the long run. Nothing is so detrimental, both as to quantity and quality of product, as well as to the value of the mill property, as allowing the machinery to get in bad condition through neglect. A good system of inspection should prevent this, if the person making the inspection knows his business, and if his reports have the proper attention. Then the overseer's responsibility does not end with the operation of the machinery but includes its care and upkeep as well. So from this angle the machinery should have good attention.

Offering some incentive to save or rather to be economical in the use of supplies often proves to be of benefit to the mill. A standard could be figured up for each section man and this amount set for him to work against. As to some suggestions for getting up these standards, one good way would be to take the past records and find the monthly average for each section, going back as much as five years, if possible. Since it is very unlikely that any two men will have spent the same amount of money, their standards will, of course, be different. If the mill is comparatively new, it might be fair to give all fixers who have an equal number of the same kind of machines the same standard. But ordinarily conditions on the different sections will vary, so as a rule possibly the better plan would be to base the standard on the past performance of the individual section.

A careful record of the expenditures of each section in the mill must be kept for comparison. This should include labor in the machine shop and all supplies and material that constitute a legitimate charge against the section man.

At least two methods of making awards suggest themselves: The first would be to figure each man's savings on a percentage basis, and award prizes to the man in each department showing the greatest reduction on this basis and possibly a premium to the man leading the mill, as well as second prizes. The other method is to give some kind of bonus to every man in the mill showing a reduction from their standard. Local conditions might determine just what would be the more desirable method.

Considerable publicity should accompany the award of the section men's prizes. A good time for this, I think, would be just before Christmas. An ideal plan would be to have a banquet, paid for by the mill, to which would be invited the executives at the office, the foremen, the second hands, the section men and other representative help. And I think it would not be a bad idea to have at this meeting some of the other leading men of the village, such as the ministers, the school superintendent, etc. The superintendent of the mill, I think, should preside at the meeting, and with suitable remarks present the awards. Here the superintendent can make a personal contact with the section men, in a manner that would be impossible in the mill where the dignity of his office would prevent such a contact. There

DEPARTMENT DAILY SUPPLY STANDARD

DEPARTMENT _____ DATE _____

STANDARD

DATE	AMOUNT USED	STANDARD MINUS	STANDARD PLUS	REMARKS
TOTALS				

PERCENTAGE SAVED _____ PERCENTAGE LOSS _____

STANDING OF DEPARTMENT _____

YEARLY PERCENTAGE SAVED _____ PERCENTAGE LOSS _____

This card is a daily summary of the supplies used by the various departments with provisions for carrying day by day the amount over or under the standard allowance. At the bottom of the card are arrangements for a monthly summary.

can be no question that this will have a very wholesome effect on the organization, binding it together with a common tie.

Along with the plan previously outlined, there could be a contest for the departments as a whole. A standard could be fixed for each department, as was done in the case of the section men. Records properly kept would show just what each room expended during the year. The award in this case could go to the overseer and the second hand.

REQUISITION ON SUPPLY ROOM

DATE_____

NAME AND NUMBER_____

DEPT:	SECTION	COMMODITY
QUANTITY	AMOUNT	

_____ OVERSEER

This suggested requisition card is to be filled out by the department desiring any items from the supply room, and is to be presented to the supply room by section man. Permanent records may be made from these cards.

Reports of the amount of supplies used by section and by department should be furnished monthly, and in my opinion, the standing of everyone in the contest should be given, at least that of the leading men. In other words, my argument is that if a man knows just where he stands, he can more intelligently plan for the future. But I have known some splendid overseers who contend that a man should not worry about his standing but should just constantly make every effort to save. To my mind this is too much like working, or trying to work in the dark. The overseer, the second hand and the section men should look over these reports carefully each month, and if they find that they are not coming along so well, they can make renewed efforts toward their goal.

While requiring more detail work, a very good plan, as I see it, is a daily budget. (See Fig. 1.) This may be worked apart from the contests. Reports would be furnished the overseers each day, giving the amount spent for supplies that day, the total saved or the money spent over the allowance. The overseer could figure a similar budget for each section man, thus letting each man know day by day just what he is doing. This plan tends to make everyone concerned with supplies more careful than where the reports are gotten up monthly, for the daily reports serve as a constant reminder. And no one likes to see anything marked up in the "plus" column. For the psychological effect it has proven a good plan to check up these daily budget reports at the overseers' meeting, if the mill has such a meeting. You know a fellow just has a certain amount of pride that makes him exert every effort to stay within his allowance.

With all of these plans operating there will come times when it is necessary to go beyond the allowance, for, as the writer has already stated, the budget plan was not developed with the idea of being stingy with supplies, or neglecting machinery. So an overseer should feel no embarrassment when he goes over his budget, provided he knows that the expenditure was justified.

In a preceding paragraph mention was made of a system of machinery inspection. The writer believes this indispensable with the budget system. The second hand in each department should inspect every machine in his department at least once a month. In a very large room the assistant second hands could do this. They should furnish the different section men with a list of any items that might be out of order, and see to it that these are fixed.

As a sort of double check some mills have a general utility or maintenance man, who works under direct orders of the superintendent and the assistant superintendent, and whose duty it is to inspect the machinery in the mill. It will of course take him several months to get around. He has no authority to have any job fixed, but he simply gives one report to the interested foreman and one to the superintendent or the assistant, and it is up to these to put the machines in good order.

ORDER TO MACHINE SHOP

DATE_____

EMPLOYEE'S NAME AND NUMBER_____

DEPT._____ SEC._____

ARTICLES TO BE REPAIRED_____

MATERIALS USED IN SHOP_____

_____ OVERSEER

This form is the machine shop's authority to repair jobs brought down by the section men. Proper records made from this form, when filled out, enable the executive to find out just what the individual section men are doing with respect to machine shop work.

Some very successful executives doubt the effectiveness of the various budget plans, especially where prizes or bonuses are offered. Others equally as successful have tried them out to their satisfaction, and to the profit of their mills. The section man is the "key man" and should share quite heavily in any distribution of prizes. But since quite a responsibility rests upon the shoulders of the foreman and the second hand, a plan that includes them as the recipients of some kind of premium has proven to be an incentive to some remarkable savings.

Modern Practices in Dyeing, Bleaching and Finishing

Part Two

By M. A. Golrick
Production Manager and Plant Engineer,
Dutchess Bleachery, Inc.

IN THIS, the second and concluding article of his discussion, Mr. Golrick continues through the plant by discussing dyeing, including jigs, pads and continuous methods; drying; calendering; finishing operations; and the importance of accurate control and recording instruments. The first article appeared in the July number of COTTON, and clippings of it will be furnished to any readers requesting them.—THE EDITOR.

THE CLOTH may be considered to be dyed after drying but only a general outline of dyeing will be made.

Dyeing in the broad sense consists of treating the cloth with any material that causes the fiber to acquire color within the fiber in contrast with that kind which is given a fabric by coating with a colored pigment. The dyeing operation is usually conducted by allowing the cloth to remain in contact with the dye liquor for a short period of time, whereupon the fiber absorbs the color until an equilibrium is reached for a given set of conditions. These conditions are time, temperature and concentration of the various ingredients of the dye bath, any of which may be varied considerably in different types of machines owing to structural differences.

Jig Dyeing.

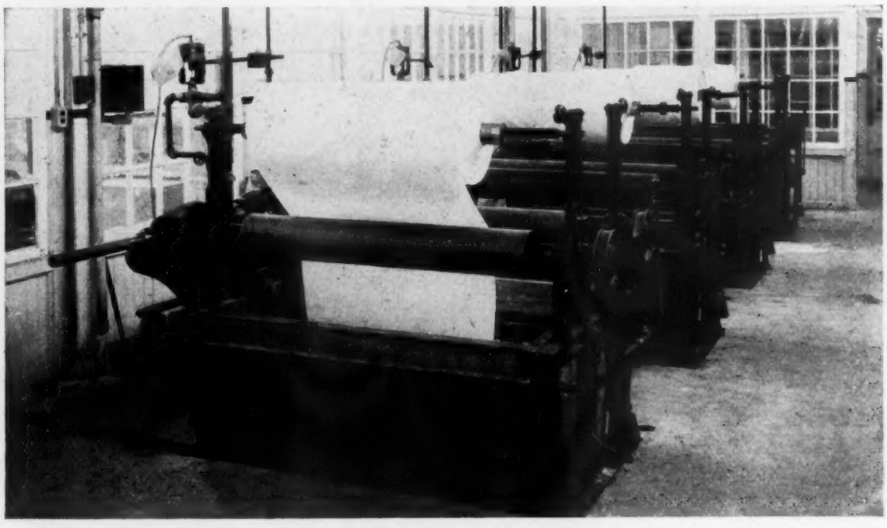
The usual methods are to use jigs, pads or continuous dye machines. A jig may be used for practically all classes of goods and is essentially a liquor box to hold 60 to 80 gallons, tapering towards the bottom to reduce the volume of liquor. It has four immersion rolls as standard equipment and two beams to batch or roll the cloth. The beams are rotated in the same direction and are located on each side of the jig and above the upper immersion rolls. Generally a double clutch permits the jig to be driven in either direction through bevel gears. A perforated steam pipe is the usual method of heating.

The cloth may be wound on the beam itself or on a shell on which the cloth is rolled. In the latter case, the surface of the cloth and beam are in contact. The beam drives the cloth wound on the shell which is held above the beam by a center bar riding in a vertical slot with a drop side to permit the roll to be removed easily.

The jig has a brake on either beam to give the necessary tension to keep the cloth smooth. The brake may be a strap over a flanged pulley with a weight or weights for tension or it may be a circular brake with an adjustable tension from a handwheel. The brake is very important in operating, as it keeps the cloth free from wrinkles, but care must be used in the use of a circular brake, as it is so easy to apply more tension than necessary and result in excessive wear on the immersion roll gudgeons.

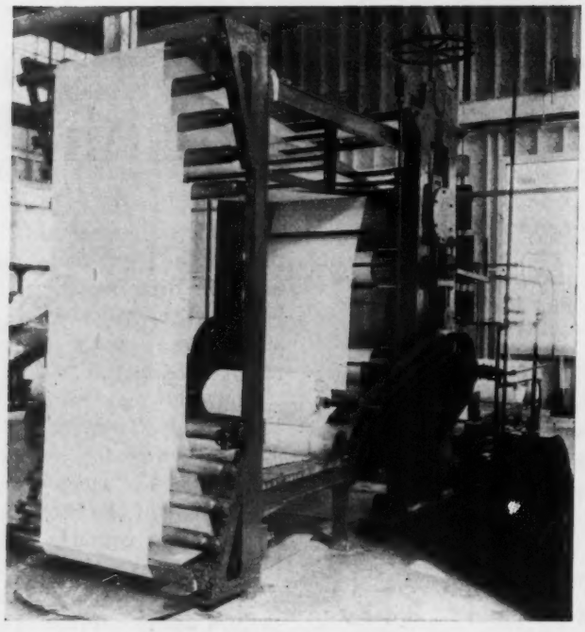
Recently, jigs have been placed on the market which reverse automatically and run for any desired number of ends. This is accomplished through a differential which makes it a constant speed jig.

In introducing the dye liquor into the jig, it is very important that the dye not only be uniformly dissolved, which is a basic rule in dyeing, but that it be evenly distributed and mixed in the jig.



Photo, courtesy H. W. Butterworth & Sons Co.
Dye jigs in a recently erected southern bleachery.

To control the jig temperature, an indicating thermometer is one of the greatest assistants to a dyer to remove one of the many variables from the art of dyeing. Often too high a temperature has been the cause of poor dyeing when other careful work in preparation has been done. This preparation includes all the processes up to this point as well as the preparation of the formula through laboratory control, plus past dyeing experience. This foundation can be spoiled



Photo, courtesy H. W. Butterworth & Sons Co.
Chasing calender at a southern bleachery.

by the unnecessary temperature increase which can be checked generally only by the jig operator using a hand thermometer. The indicating thermometer is excellent insurance at this point as it permits the operator and overseer to observe the temperature at all times. Recording thermometers or temperature regulators or both provide the maximum check where conditions permit the investment.

Pad Dyeing.

The next common type of dye house equipment is the pad, which may be defined as a machine consisting of two rolls which squeeze the dye evenly and quickly into the cloth. A pad often has two rubber covered rolls and with this type of roll, the bottom is dead hard while the upper roll is medium hard. To get an even squeeze across the face of the rolls and goods, it is imperative that the common type of lever set be carefully adjusted before running the cloth.

It is common to run the pad rolls in water at the temperature of the dye liquor before running cloth through the pad. The cloth picks up its liquor either by running under the bottom pad roll or under an immersion roll. In either case, the cloth passing between the rolls squeezes the excess dye liquor back into the liquor box located directly under the bottom roll. The shape of the box adheres as closely as possible to the shape and size of the bottom roll. The reduction of the box size to the minimum is to save dye liquor which is fed from one or a pair of tanks. The use of a pair of tanks is common to permit another tank of liquor to be made up as soon as one is used up. Also a pump or siphon is often used to return the unused dye box liquor to the supply tanks.

In the operation of pads, the lost time between runs is very high unless a plant is fortunate in having large yardages of one shade. The speed of a pad is often 150 to 200 y. p. m. and it is capable of dyeing goods rapidly if conditions are suitable, but it requires minute supervision.

A pad is primarily used to dye direct colors and while other colors are dyed on pads, it is but part of the process or a unit of a range such as a continuous dye machine.

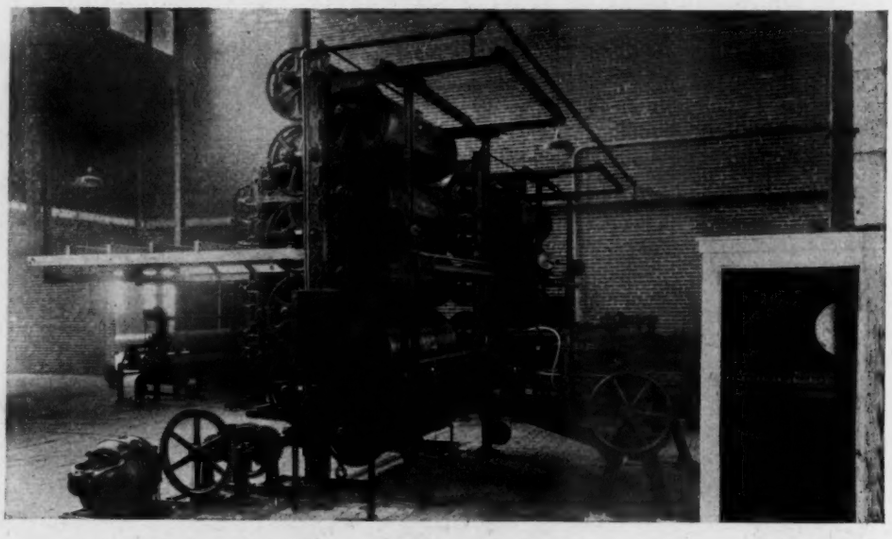
Continuous Dyeing.

A continuous open width dye machine consists of a pad as described, a series of boxes to complete the dyeing operation and sometimes an open width or a rope soaper. The pad impregnates the cloth with the dye liquor where partial absorption of the reduced color takes place. The cloth is then "stayed" or makes several vertical passes over a series of rolls to increase time of absorption before entering the first box.

This box is known as the re-reducing box and is used to keep the shade uniform throughout the roll or rolls to be dyed. This use of a re-reducing box allows a better control and a more economical use of color than a machine having only a water rinse after the pad.

The second box is the caustic and hydro rinse. The third box is the cold water wash, and the fourth is the oxidation box and the liquor may be a dilute solution of chrome and acetic acid.

In this particular range, the cloth passes to a rope soaper divided into four compartments. The first compartment is warmed, but not boiled, to give



Photo, courtesy H. W. Butterworth & Sons Co.
Ten-cylinder drying machine synchronized with 60-foot straight automatic tentering machine.

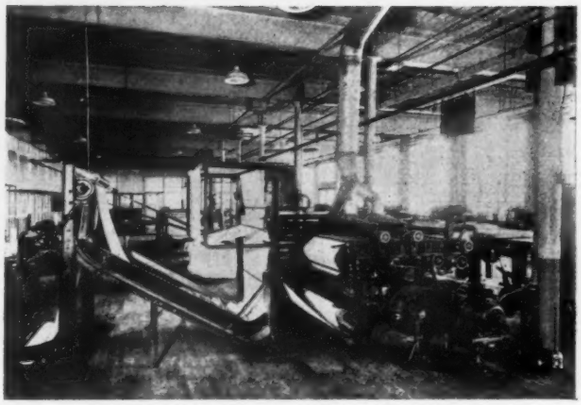
a warm water wash before entering the second compartment containing soap solution. The third compartment is a warm water wash, while the fourth is a cold water wash, after which the goods are squeezed into a box. This machine is the standard kettle with a nip roll, the entire face of which squeezes the goods on each pass of every strand.

The goods, on leaving the dyeing machine, are squeezed by a pair of nip rolls which are also located on the delivery end of each box. This range gives a uniform fast vat color and is considered to be the equivalent of 16 ends on a jig. More uniform dyed goods are obtained from a well controlled vat machine than from jigs which require the shading of goods which is noticeable from roll to roll even on good jig work. When the quantity of work permits the use of this machine, the production cost is lower as it results in one less man than on jig work.

The operation of a continuous machine must be carefully controlled or it loses its advantage. The installation of indicating or recording thermometers is easily warranted as the total machine investment is large in comparison to many finishing plant machines.

Drying.

The goods are dryed after dyeing and then framed. The tenter frames are used to get the cloth to the required finished width and put up on rolls for calendering. It is common to have the tenter frames in tandem with a set of six to ten dry cans and a starch mangle. The mangle is used to introduce the softeners and various finishing materials on or in the cloth. The mangle usually has a maple roll and a brass cylinder with a box of minimum capacity to reduce the finishing liquor waste due to changing from one style of cloth to another. This cloth change is due to continuous operation and each type of cloth requires a special finish. This makes it imperative to have a pair of starch or pure finish tubs so that there will be no delay while mixing finish for more or a different cloth. The mangle should carry the maximum set possible to have the cloth well squeezed before reaching the cans. This assists the drying effect and permits a greater frame speed.



Photo, courtesy Curtis & Marble Machine Co.
Shearing machine, with scray and sewing machine.

The cans should not dry the goods so that they have less than 10 per cent or 12 per cent of moisture or the frame will not be able to pull the goods out to width. This is one of the reasons why only a few cans are put in range to reduce over-drying. Over-drying goods is a common cause for low production from tenter frames and also dry cans. A careful check should be maintained by the operators, whose tendency is to be sure that the goods are dry, when they are paid on a straight labor hour rate. The operators paid on a bonus rate have a tendency to under-dry goods and to get maximum production, and a careful supervision must be maintained. It is possible to use a chemical indicating solution which is pink on wet goods and changes to blue on drying. Over-drying may be checked by watching the shade of blue and the deeper the color, the more the goods have been over-dryed. This solution is applied only close to the seams and affords the operator a check on the actual drying speed.

In most cases, an indicating tachometer gives the operator a close check on the maximum speed the frame can be run for a given class of goods. It is well to have a supplementary check as described.

Inspection and sewing department at a southern bleachery.

Calendering.

The next operation is calendering and the general classes are plain, chase, friction and schreiner.

The hydraulic type of calender is preferable for use on any of the classes of calendering, as it always gives a pressure reading which permits better control. Another decided advantage of the hydraulic calender is the ease with which results may be duplicated. This advantage is of great importance in preparing goods for market today as

the trade is very exacting as to finish. A hydraulic calender gives uniform results across the face of the cloth with true bowls, while a lever or dead set calender is very difficult to adjust for even finish.

The control of heat on calender cylinders has improved to a marked extent with many devices on the market. For gas fired calender cylinders, an automatic temperature control with a recording thermometer represents the complete system. This control may be extended to electrically heated and steam heated calenders. An indicating system for manual control is of value where the complete automatic system is not available.

Putting-Up.

The next step in finishing is to put up the goods as requested by the customer. The put-up may involve the use of a hooker to yard the goods for 9-inch or 12-inch fold, a doubling and rolling machine, or rolled-at-width machine. This is the last machine operation to check the final yardage and should be checked constantly for correctness as to yardage. This final yardage is the amount billed to a customer and, therefore, should be exact.

The operations in a folding room are to a great extent manual and the same holds true for packing and shipping. Much of the labor of a folding room is to check the condition of the goods before final shipment and at this point, the goods are classified or sent back to be re-finished. The re-finishing of goods is often the straw that breaks the camel's back as the finishing price in general is so close to cost that re-finishing means a loss.

The surest method to reduce this loss to a minimum is by following the routing sheets as closely as possible, keeping lots intact and knowing exactly what the proper conditions are for each grade and type of cloth for each operation. Practically all plants maintain laboratories to eliminate trouble by giving definite information on various phases of each operation. However, they fail to provide the operator with the necessary control instruments for operating his process equipment to meet the predetermined conditions. The control of processing goods must be removed from the conditions of the past when exact conditions were unknown for unit operations.

Control Instruments.

The next step is to adhere to the known conditions by the use of instruments. Of course, the cost of installation and maintaining the instruments outlined can be run into an excessive figure, but good judgment can easily determine wherein the greatest returns for any investment will give the best yield. A simple instrument which records the actual productive time and delayed time and also the period of the day during which the delays occurred would be justified if applied to a single machine. Where many similar machines are in operation, a hesitancy to equip one machine is noticed as it would involve a large sum if applied to many machines. However, if the investment is justified for one machine and it is definitely known that it is a paying proposition, then it certainly shows a lack of managerial confidence in failing to make an investment which lessens the human element of judgment and makes a business get down to hard facts. The future and present development demand that the finishing business get farther from the art of finishing which has shown itself to be very inconsistent and to develop only on basis of facts which have been measured in the past and can be repeated in the future.

The careful analysis of any one plant will generally reveal some condition which should be checked and will result in eliminating some trouble and making a consequent saving. Each step in this direction is one of progress which will tend to lift the finishing industry from its present chaotic condition.

[This is the second of a series of two articles by Mr. Golrick. The first appeared in the July issue.—The Editor.]

This is a picture of one of the Avondale Cotton Mill bands. There are two bands at each of the five Avondale Mills points and these bands are composed largely of school children. Each is in charge of a full time, competent director and on the numerous trips about the state, they always elicit praise not only for their music but because of their cultured conduct.

Observations of HANK G. SPINDLE, SUPERINTENDENT

By H Gilmer Winget

Article VII.

Our friend Hank has been missing from our pages for the past few months, and the many readers who have been inquiring about him during his temporary absence, and others, we feel sure, will welcome him back with us.

The line of thought he follows in the accompanying discussion is somewhat removed from cotton manufacturing, it is true, and yet he presents some forceful opinions and conclusions that will be of help and value to all of us. He promises to get back onto mill problems in his next letter; although we are not urging him to do so, since his views on almost any kind of a subject seem to be well worth while.

THE EDITOR.

A FEW NIGHTS AGO, the wife went to see a picture show with some friends and left me at home. Since being alone does not set so well with me, I grabbed my hat and strolled down the street to chat with Hank G. Spindle for a little while. I found the old boy busy taking the back-lash out of a reel and polishing up a fishing rod in preparation for a trip in case a sudden attack should strike him. That is, if his fishing fever should suddenly rise. Inviting me in, he reached for the switch and turned off the radio program, with the remark that he was fed up on static, and that anyhow it was hard to enjoy a sermon on the heavenly home, while a jazz band was playing from another station, "It's no sin to pull off your skin and dance around in your bones."

After we had lighted up our stogies, we settled down for a chat.

Hank said, "Well, are you still reading COTTON?" I replied that I read every issue, and by way of comfort to him I said, "I read your observations, every one of them."

"Good," he said, "if you will stick by me and read the observations from time to time we may be able to convince you of one thing at least.

"Just as the story runs that a fine young lady had made the acquaintance of a handsome young man. It was a case of love at first sight for both of them. The mother of the girl was very much interested in her daughter's courtship and wanted her to marry the young man. One night she asked her daughter what progress she was making toward landing him. The daughter replied that she was afraid to marry him; that he did not believe there was a hell. The mother replied that she need not worry about that. 'All you have to do,' said the mother, 'is to marry him and bring him over to my house for 30 days, and he will be convinced.'

"So, if you continue reading the observations, we may convince you also, at least convince you of something or another."

"Well," I said, "I have a question that I want to get your opinion on. What's the matter with business and what is the meaning of the so-called industrial unrest and crime waves in this good old United States?"

"Well now," said Hank, "you have asked a mouthful. Lots of smarter fellows than I am would like to find the answer to that one. I can give you a sort of a home-spun opinion of my own and you may take it for what it is worth.

"First of all," he continued, "I will say that the human race, while more educated and seemingly smarter than ever, is fundamentally the same as it was years ago—just human beings, full of judgment, good and bad, full of ideas good and bad, full of sins of omission and commission, just as we were taught years ago, and last but not least, full of good deeds and righteousness.

"I am proud of America, with her glorious history, traditions and accomplishments, in every realm of business, society and industry. America is the most wonderful country on earth to live in. I for one believe that when any person from abroad comes to America and seeks to undermine the Government and haul down the stars and stripes and substitute some other flag or some rotten form of government, that that person should be speedily deported and the seat of his or her pants, if any, dusted with a number 11 boot as he or she goes up the gang plank. The skunk that will take the food, freedom and protection of the American government and turn as a dog to bite the hand that feeds them—well, I regret that I have slandered the skunk by calling such a person a skunk. I apologize to the worst skunk I ever knew, here and now.

"Much of our trouble now is not new. Much of it is simply a repetition of what has happened before. Many of the spell-binders say that it has always followed war and that the existing conditions are a result of the war and are to be expected. I do not know

about that, but I have an idea that wars or aggression are the most asinine things on the face of the earth. Following the reading of religious history, one will find that certain eras were classed as dark ages, when religion and the churches were at low ebb, while other times were referred to as the reformation period, etc.

"What is wrong with America? Why, my idea is that America just now needs a better citizenship. You and I should be better law-abiding example-setting citizens. I mean the setting of good examples. The ten years just passed will furnish the historians with plenty of food for thought. They will no doubt say several remarkable things about this age. The historian can very truthfully say that there is in all the world no outstanding statesmen. It is an age when no Moses has appeared to lead as a statesman and there has never been a time when the opportunity was more real than now. America needs today statesmen of real ability.

"Then I think that the historians might well say that it is an age when we are going through a re-adjustment of industrial affairs. To some of us it may appear that it is a day of industrial clashes. I think that in the end, however, we may say that it is re-adjustment.

"Then one of our greatest problems is the decadent home. We certainly have that problem in America. The basis of good government is the home. A good home. It has been said that the gold from the mints of the gods is made in the homes, and if the home weakens, then the social fabric falls. Are we losing our grip on the youth of the land in our home life?

"Then another problem is the sleepy church. The church is not dead, but it is nodding. Some churches are wide awake, but it is a sad fact that many of them have no fearless, vigorous message of righteousness. If the churches had such a message, the homes of the nation would be a more fit place to live, and the output of young people would be of a finer type.

"The past ten years have been an age of loose dollars, though I confess that not many seem to be on the loose pulley just now. Never before in the history of the world has there been more money to spend or more money spent than this and other nations have spent in the past ten years. Luxuries have now become necessities. Never have the problems of law enforcement been more acute. We try people in the newspaper and the juries have the honor of sitting in after they have been tried. An editor recently suggested that we elect our governors and public officials by juries and try our criminals by popular vote.

"Then there is the problem of undisciplined youth. The youth of today are not so bad. They need discipline and good example. Are we older folks setting the youths a good or is it bad examples that we set more often? This is the day of the faddist in education. We have a real need for education that educates and builds character.

"We have many other conditions like those mentioned. Because of these conditions we need a type of citizenship that will counteract the evil tendencies. Law-abiding, God-fearing, energetic, intelligent citizens who are interested in the welfare of their fellowmen, the church and Government, are the classes needed."

"Well," I said, "It's geting late and I must be going. I wanted to talk over some mill problems, too, but that will have to go over to another time."

"O. K.," said Hank. "Come back. Next time we will talk over mill problems."

Additional Personal Notes.

(*See also page* 1234.)

W. L. Phillips, who for the past twenty-nine years has been actively engaged in the textile industry, has retired from that field to become associated with the Southern Automatic Sprinkler Company, Inc., of Birmingham, Ala.

Aaron E. Carpenter, first vice-president of E. F. Houghton & Co., Philadelphia, manufacturers of oils and leathers for the industries, has just returned from an extended business survey in France, Germany, Poland, Russia and England. When asked how he found business conditions in Europe, Major Carpenter stated that on the whole business was only fair, inclining to poor in some sections.

Lewis W. Thomason, southern district manager for Non-Fluid Oil, recently made a trip to New York City, for a conference with J. H. Bennis, sales manager, and his technical staff. The purpose of his trip was to discuss the improved grades of Non-Fluid Oil which were announced to the mills a short time ago, thus enabling him to be of more aid to the mills in solving their lubrication problems.

Claude O. Streeter, who for the past eighteen years has been associated with Graton & Knight Company and its subsidiaries as chief mechanical engineer, has resigned to accept a similar position with the Schwartz Belting Company of 76 Murray Street, New York City.

Osbert Hughes has resigned his connection with the F. Reeves Company, Philadelphia, and is now designer at the Charlotte, N. C., branch of Thomas J. Capper, Incorporated, textile designers.

J. C. Jolly, formerly overseer of carding and spinning at the Pauline Mills, of Kings Mountain, N. C., has been promoted to the position of superintendent of spinning and processing at the Margrace and Pauline Mills, Kings Mountain, N. C.

J. B. McMahon, formerly Tulsa branch manager of the Foxboro Company, will hereafter make his headquarters at the home office at Foxboro, Mass. He is to take charge of all field engineering service and will be responsible for all direct sales effort. **G. B. Lane**, former manager of the Detroit office, has succeeded Mr. McMahon as branch manager at Tulsa.

W. W. McFadden, as the result of the creation of a new section to be known as the Sales and Service Section by the Westinghouse Electric and Manufacturing Company, has been placed in charge of this new section. For many years he supervised similar activities in the range section.

J. O. Blackmon will be general manager of the Tellico Cotton Mills, at Tellico Plains, Tenn., which will be reopened shortly by Callaway Mills, Inc., of LaGrange, Ga.

W. E. Tarrant, of Piedmont, S. C., a graduate and former professor of Clemson College, has accepted the position as head of the weaving and designing department of the Auburn (Ala.) Polytechnic Institute.

CURRENT TOPICS

Talk of the Month

IN A TIME OF DEPRESSION one form of mass production is most successfully, and involuntarily, promoted: the spirit of business apprehension. Based on reports of early August, the economic situation was hardly what had been hoped for it and perhaps the trouble was too much emphasis on general business as the hope for removal of depression. We have become accustomed to talk of general business as the criterion of the future. Now it appears that, whereas individual markets are buoyed up in times of lively selling by reports of general conditions, they are correspondingly retarded when the broad state of affairs is depressed. Which is a logical result of mob psychology in economics: the general trend is a friend when the sun is shining and a curse when the days are dark. The individual reacts to it both ways.

"Every Little Bit Helps"

It is becoming evident that skepticism is raised by reports glossing over the true state of business in times of depression and one is constrained to believe that the expected improvement in business was retarded thereby. The mass of grains of sand make the beach, but the single grains make the mass. So it is the business of the individual person, or unit, makes the general business. Thus there was some encouragement during the past month in reports of renewed activity in manufacturing plants here and there, notably in despatches from Detroit announcing the return to work of 150,000 to 175,000 employees. It is only a question of time when the individual reports will accumulate enough to give that spur to confidence that means general business on a prosperous scale.

Hiring Technically Trained Men

PERTINENT TO THE SUBJECT of making the cotton industry as modern and progressive as others, is the subject of recruiting the scientifically trained men for mill operation and management. Three years ago it was asserted on the basis of a vocational study of the textile graduates of North Carolina State College of Agriculture and Engineering, by Professor Hart, of that institution, that the textile industry offered better opportunities to young college men than ever before. The average annual income was said to exceed considerably that of college graduates throughout the country. Yet this year a writer in a trade paper expressed the opinion that a trained technician in a textile mill earns less than a laborer in many other industries. We may hope the opinion is not too well founded, but when all industry is dependent largely upon scientific operation, cotton manufacturers must surely give their keenest attention to the selection of men well grounded in fundamentals and alert to fact-finding methods.

An encouraging fact in this connection is the reception accorded the recent crop of textile graduates.

SCRAPPING OF OBSOLETE EQUIPMENT has been a question perplexing various industries for many years. The point where buying of second-hand machinery becomes a mistaken policy is a serious one. Now we read of a proposition for the scrapping of whole plants as a way to remedy the situation of an over-equipped cotton industry. In connection with the program of production regulation, it is a sore spot to efficiently managed units that they have to cooperate with others that, under the rule of survival of the fittest, would fall by the wayside.

Shall the Strong Support the Weak?

Herein is one obstacle to the permanent adherence of the successful manufacturers to the campaign of regulation of output and obviously they have just cause for complaint. Another form of cooperation is suggested, however, that may take care of the problem—apart from the matter of hours of operation—and simultaneously expedite the departure of the inefficient plants. We have seen the American Woolen Company eliminating dozens of its units because of uneconomic operation thereof. We have seen the automobile industry take drastic measures to rid the industry of the competition of cars which should be off the road. Now a suggestion is made that mergers be promoted with the idea of purchasing plants in the cotton industry with the idea of closing them.

Preventing the Price-Cutting Evil

RECENT MONTHS have indicated that various departments in the textile field have suffered separately from price-cutting of a disastrous nature and out of this has come an idea of cooperation that might work well for all. As with the mills that have been willing to work on the basis of holding for a reasonable profit and refusing to do business without it, there are some finishers and converters who are ready to resist the pressure for unwarrantedly low prices. The idea is that combinations of mills, finishers and converters might be formed which would join for the purpose of offering consumers of the finished product a service of production and merchandising on a basis of quality, which is the best way to eliminate the undue emphasis of price.

"Streets Covered with Cotton"

NEW USES FOR COTTON may be the result of ingenuity, based upon the kind of observation which leads to invention. A large number of useful products today were not the result of need, but the next thing to it: comfort and convenience. The summer is a time of heat and slow business. Much thought is given by business men to overcoming "the summer slump". Shoppers naturally are prone to avoid the streets of the city in the hot weather, but some day we may find these thoroughfares looking like fields of shade-grown tobacco. For some inventive

mind has conceived the notion of awnings stretching between rows of buildings on opposite sides of the street. In Upper Darby, Pennsylvania, they have such an awning of 6,000 square yards. This helps to make a double killing of the summer slump: for the mill and for the retailer.

What the Southern Mills are Doing

THE AVONDALE MILLS, Stevenson, Ala., have purchased oil spraying equipment from Borne Scrymser Co., New York.

H. W. Butterworth & Sons Co., of Philadelphia, recently completed installation of one five-roll straight and friction calender at the Muscogee Mfg. Co., Columbus, Ga., manufacturers of towels, ticking and specialties.

Consolidated Textile Corp., Pelham, Ga., recently installed Breton Minerol Process equipment for oil spraying cotton. This was purchased from Borne Scrymser Co., of New York.

Robert & Co., Inc., Atlanta, Ga., have finished plans for remodeling and improving several buildings of the Exposition Cotton Mills, Atlanta, Ga. Improvements will include brick walls and tar and gravel roofing, at a cost of $65,000.

It has been reported that the Manchester Cotton Mills, Manchester, Ga., are planning upon electrifying their plant throughout. Work will be started at once. The mill is part of the Callaway organization, of LaGrange, Ga.

A considerable amount of new machinery is being installed in the Strickland Cotton Mills, Remerton, Ga. It is stated that when the machinery is ready for operation the capacity of the plant will be greatly increased. The installation, it is stated, will give the mills a very modernly equipped plant enabling it to keep pace with the very latest in cotton goods products at the lowest possible cost of operation.

Sam Hodges, of Atlanta, Ga., has received the contract for alterations and additions to mill building of Exposition Cotton Mills, Atlanta, Ga.

Louisville Textiles, Inc., Louisville, Ky., formerly the Louisville Cotton Mills Co. and Louisville Textile Co., recently announced that they would have in operation within a very short time about 125 looms. A number of these will be new Draper looms.

Stockholders of the Falls Mfg. Co. and Southern Mfg. Co., of Granite Falls, N. C., have voted to combine the two plants. Falls Mfg. Co. manufactures fine yarns and Southern Mfg. Co. manufactures coarse yarns.

Pinehurst Silk Mills, Hemp, N. C., have installed 72 new looms and other equipment. The plant is now operating on full time schedule, manufacturing silk and rayon goods.

Bellvue Mills, Hillsboro, N. C., are putting in new rings and doing quite a bit of overhauling. The Southern Spindle & Flyer Co., of Charlotte, N. C., has completed work on steel rolls and putting in fly frames and pickers.

It is reported that Pinnacle Mills will soon establish a mill in Lenoir, N. C.

Boger & Crawford Spinning Mills, Lincolnton, N. C., have put in 5,000 mule spinning spindles for very fine yarn and now have them in operation.

The Alamance, Burlington, N. C., which was formed with authorized capital of $100,000 to establish spinning, weaving and processing silk plant, will install $100,000 worth of equipment.

A new system of Bahnson humidifiers is being installed in the Lenoir Cotton Mills. Lenoir, N. C., by the Bahnson Co., of Winston-Salem, N. C.

The Belmont Fabric Company, Belmont, N. C., have purchased oil spraying equipment from the Borne Scrymser Company of New York.

Walcott & Campbell Spinning Co., Gulfport, Miss., have announced that the Southeastern Machine Co., of Atlanta, Ga., is to install the machinery in its plant.

Cross Cotton Mills Co., Marion, N. C., have been reported making a number of improvements, among which are included repainting and reconditioning of houses and installation of the Firth system of vacuum cleaners.

The Union-Buffalo Mills, Co., Union, S. C., have purchased oil spraying equipment from Borne Scrymser Co., of New York. This makes their third installation.

Springstein Mills, Chester, S. C., recently completed installation of 360 automatic looms to replace some gingham looms. The mills are manufacturing 39-inch print cloth.

Tucapau Mills, Spartanburg, S. C., are installing 50 new Draper looms, which brings their total up to 800 for the manufacture of 48-inch and 50-inch cloth.

Tellico Cotton Mills, Tellico Plains, Tenn., are being repaired and the machinery is being overhauled. The mill will be reopened soon and the number of spindles will be increased from 2,000 to about 4,000.

The new mill owned by Trenton Mills, Inc., of Trenton, Tenn., is expected to be completed and operating by the latter part of Fall.

New England Mill Situation

August 18, 1930.

TALK OF REORGANIZATIONS, mergers, liquidations and other changes in the business complexion of New England has continued of principal interest during the past month. Some efforts to reorganize which were previously much talked of, it appears, evoke very little confidence now, even in the circles closest to such change, but the necessity of such action still exists, and, given this, the means may not be long in appearing.

Underlying this tendency are the continuing unsatisfactory business conditions in the fine goods industry. There has been some improvement in sales since the first few weeks of July, but the gradual gain in business has been unsettled by competition in the all-cotton goods lines and by the downward revision made late in July in prices on practically all descriptions of rayon yarns. This latter change, while it has been made necessary by the very low prices on raw silk leaves cotton goods still somewhat out of proper relationship to cloths of these other fibers. While much is hoped for from the advertising of the desirability of fine cotton goods, merchants in many cases have their doubts as to any gains in the size of the new season's market for fine cotton fabrics.

Fine Goods Mills Operations.

Cautious operations have consequently been followed in New England fine goods mills. Curtailments continue effective on about the same basis as in recent months, mills averaging 60 to 65 per cent of normal production. Staple cloths continue to be carried for stocks, but have been rather firmly held during the period. Broadcloths, lawns, voiles and the like appear in this classification. Very little else is being carried for stock, the business in fine cotton fancies, rayon and cotton crepes and other mixtures being practically all on contract with a slight premium here and there obtainable for quick goods. Business in contract fancies has gained.

Reports that the Berkshire Fine Spinning Associates are making an effort to add the Whitman Mill in New Bedford to their properties have been of principal interest in the line of mergers. The Whitman is seeking refinancing, and efforts to this end have been put forward both in New England and New York. An observer in New Bedford reports that it is generally expected that unless the Harding interests succeed in this refinancing the mills will be reorganized or fall into the hands of the Berkshire Associates. Reports have been current that both Berkshire and the Bancamerica-Blair Corporation have been buying into this mill. Berkshire officials are noncommittal on the matter, put of marquisettes that the merger currently lacks, and however, Opinion is that the Whitman equipment would fill a gap in Berkshire's make-up, having a potential outfitting well into Berkshire's plan on other goods.

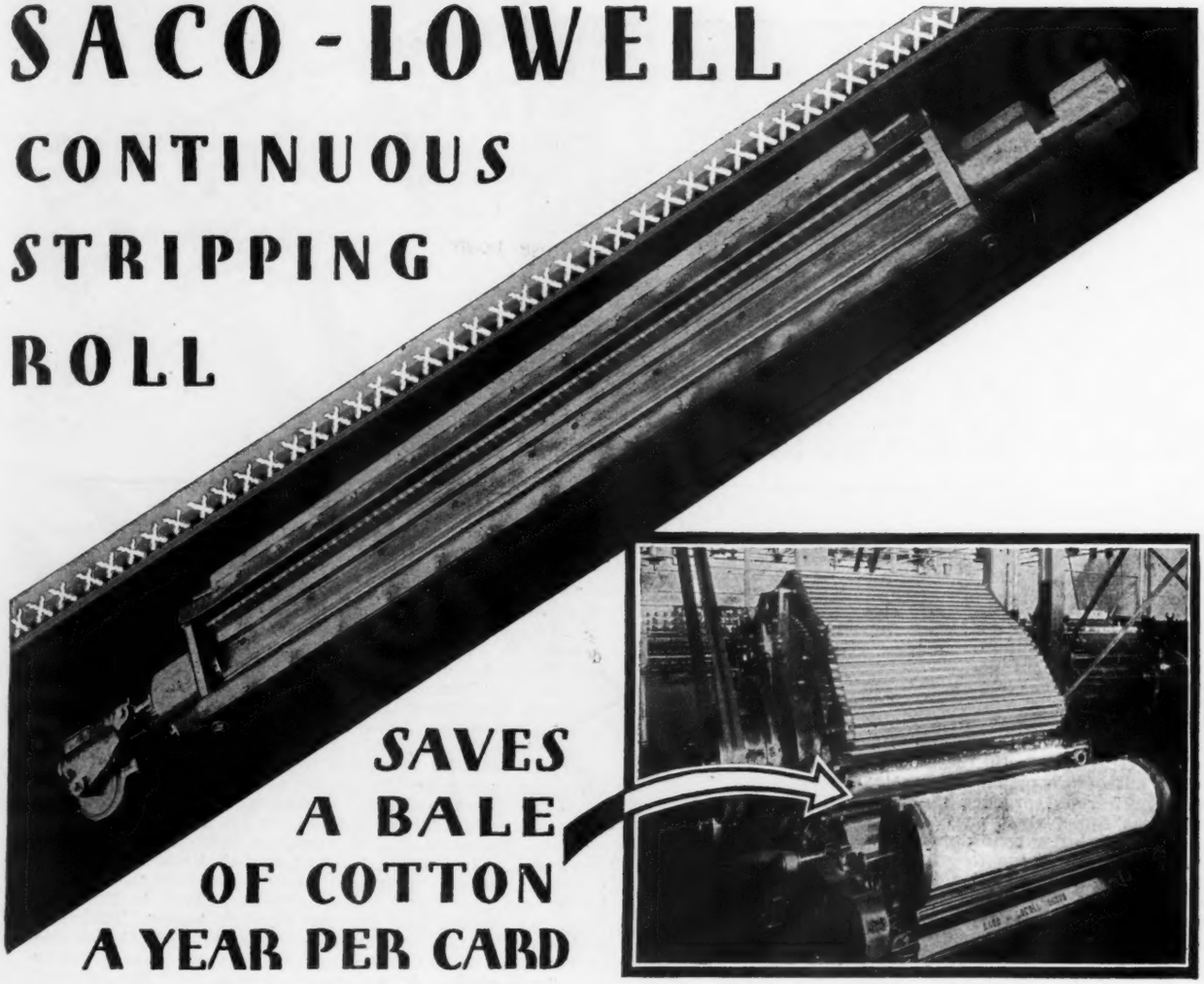
More Merger News.

While spokesmen for the Bancamerica-Blair Corporation who have long been working in the concern's interest informing a New England fine goods mill merger declare that they have the necessary spindleage (900,000 minimum) pledged and will go ahead at such time as financial markets improve, opinion in New England is that little is now to be hoped for from this merger. The Grosvenor-Dale and Warren Manufacturing Companies are reported definitely withdrawn, and now it is stated that the Pilgrim Mill in Fall River and the Queen City Manufacturing Company in Burlington, Vt., have notified the bankers that their agreement to refer the matter to their stockholders is withdrawn, the specified time during which they agreed to do so having elapsed.

Meantime reports are that an effort is being made to consolidate the Lincoln and Davis Mills in Fall River. Lincoln has 148,000 spindles and Davis 130,000. They are capitalized at $4,750,000 combined common stock and a bond issue of $1,250,000 would put them in an inde-

SACO-LOWELL

CONTINUOUS STRIPPING ROLL



SAVES A BALE OF COTTON A YEAR PER CARD

DISREGARDING the advantages of sliver of better quality, increased production, and saving of labor made possible by the Saco-Lowell Continuous Card Stripper, the saving in cleaned stock alone warrants its immediate application.

In a recent survey it was found that the total amount of cylinder strips from each standard card was 15 ounces per day of ten hours. The mill is running night and day and accordingly the total cylinder strips for a day and night run is 30 ounces. They have 84 cards which means that they are producing 157 pounds of cylinder strips each working day, or a total of 47,100 pounds per year. The Saco-Lowell Continuous Stripper saves this cotton and delivers it into the sliver.

This latest Saco-Lowell development is commanding attention in the leading mills in this country and abroad. Seldom can we offer attachments that show such immediate and substantial savings. May we present full information now? You are sure to be interested.

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 Milk St., BOSTON, MASS.

CHARLOTTE, N. C. SPARTANBURG, S. C. ATLANTA, GA.

These young ladies are spinners in the Avondale Cotton Mills at Alexander City, Ala. Overalls have recently become very popular with them.

pendent merchandising position. The two mills are located not far apart and are regarded as complementary in their production. These two mills were among those who agreed to consider the Bancamerica-Blair merger plan.

Union Mill Liquidates.

Union Cotton Manufacturing Company of Fall River, one of the oldest of that city's textile establishments, has voted to liquidate. At a special meeting 9,139 shares voted liquidation with 96 shares opposed out of a total of 12,000 shares of capital stock outstanding. The board was authorized to dispose of the property. Reasons for liquidation were recently set forth, these being taxation of cotton mills being out of proportion to actual value, and the fact that the South could produce the goods for which the Union mill was equipped at prices the Union could not possibly meet. This latter condition the mill thought to be permanent rather than due to any temporary market condition. Union since reorganization in 1880 has returned $9,007,000 to its owners including payment of stock dividends issued and subsequently retired. It has paid $1,550,000 in taxes and has had an approximate weekly payroll of $14,000.

Tax Rebates

The Fall River board of assessors has granted tax rebates to the Pocasset Manufacturing Company and Stevens Manufacturing Company, reducing valuations on realty and machinery. Stevens has recently increased its production.

The abatements to the Pocasset for 1929 are: Real estate $120,000, tax $4,416; personal $64,000, tax $2,355.20.

The abatements to the Stevens are: On 1928 real estate $277,750; tax $11,332.20; personal $111,650, tax $4,555.22; on 1929 real estate $284,650; tax $10,453.04; personal $126,650, tax $4,600.72.

Dividends Paid and Passed.

Sagamore Manufacturing Company, Fall River, has declared a quarterly dividend of two per cent which was paid July 31. Flint Mills declared a one per cent dividend payable August 1, the same rate as the previous quarter. Firestone Cotton Mills, Fall River, have resumed operations after a brief shutdown. Charlton Mills passed its dividend to conserve assets, declaring, however, that the worst of the current depression was over. An underwear manufacturer will take over part of the No. 2 Border City mill October 1. The Avon Curtain Company will shortly begin curtain production in the Wampanoag mill space it has leased. Several small garment and curtain concerns recently arrived in Fall River and are now giving employment to a total of 1,000 persons.

Quissett Mill in New Bedford has voted a regular quarterly dividend of $1.25 on the common stock.

A "Golden Rule Mill" is being started in New Bedford. Capital subscriptions to August 9 were $17,000, of which $10,000 was cash, according to Emules Lettendre and Alfred O. Arvisais, promoters. Former employees of the new Bedford Silk Mills are fostering the project, which will be known as the Maderite Silk Mills, with the Fairhaven Mills a possible site for the new silk weaving enterprise. Each employee will ultimately have five fully paid $100 shares, part at the outset and the balance in weekly payments. Machinery has been arranged for, it is stated.

Leonard S. Chace has been made an additional member of the board of directors of the Berkshire Associates and the 1¾ per cent regular quarterly dividend on preferred has been declared.

In Salem, Mass., Saturday morning work has been resumed at the Naumkeag Steam Cotton Company plant. A three-week shutdown, vacation and stock taking took place at the Nashua Manufacturing Company plant, Nashua, N. H. The B.D.E. Rayon Manufacturing Company of Boston is negotiating for a plant in Lowell, with equipment.

Amoskeag Manufacturing Company in Manchester, N. H., has been celebrated in the magazine, "Time," under the heading, "Amazing Amoskeag," in which tribute has been rendered to the treasurer, Frederic C. Dumaine, for turning the losses of a few years ago into the substantial profits made by the world's largest cotton manufacturers last year. In Keene, N. H., tax abatement suits of the Faukner and Colony Manufacturing Company are going forward.

Bates Manufacturing Company in Lewiston, Me., due to depression, has omitted its semi-annual dividend of $2 recently due, the first time in many years that the concern has passed a dividend. From eFbruary, 1922, to February 1926, the concern paid $12 and through August, 1929, paid $8 with a $4 rate last February, now omitted. Bates has 98,000 spindles and makes quilts, bed spreads, seersuckers and dress goods. It was taken over a year ago by New England and Public Service Company, the Insull subsidiary.

Pierce Leaves American Woolen.

Of interest in all branches of the New England textile industry is the report that Andrew G. Pierce of New Bedford is to resign as president of the American Woolen Company, a position which he has held since the death of William M. Wood. Richard Lennihan, treasurer of the Hamilton Woolen Company, is reported to have been offered the position. Other widespread business interests of Mr. Pierce are reported his reason for wishing to be relieved of the presidency of the world's largest woolen and worsted producers. Meantime the Wood, Washington and Ayer mills of the company, all in Lawrence, Mass., will omit their regular 10 days vacation period the end of August. Other units of the American Woolen Company will close Aug. 23 to Sept. 2.

Equipment of Walworth Brothers, Inc., woolen and worsted manufacturers of Lawrence, Mass., have been sold at public auction for about $8,400. Included was 28 Draper automatic looms sold for $3,920 and 94 Crompton & Knowles looms sold for $329.

Frederick L. Jenckes, president of Manville-Jenckes Company owning mills in Rhode Island and North Carolina, has resigned due to ill health.

American Thread Company has reported for the year ended March 31 net profit of $1,309,053 after interest, depreciation, Federal taxes and inventory adjustment, this being the equivalent of $.88 per share on 1,200,000 shares of common after 5 per cent dividend requirements on preferred.

Part of the equipment of the Glastonbury Knitting Company's plant, Manchester, Conn., has been removed to the company's other plant at Glastonbury, Conn., but the Manchester plant will not be entirely abandoned, according to Martin K. Pasco, vice president. The company for years produced the well known Glastonbury underwear which has since been displaced by the modern style, giving the company a year round product.

To get work out on time

consult the G·T·M

The G.T.M.—Goodyear Technical Man—has a faculty for getting work done. He studies all factors. He has a liking for action. Now machinery, now tools, now goods, come under his scrutiny. What special conditions exist? Is power lost in transmission? But whether movement of goods, liquids, air, or engine-power is the problem, he gets at the facts. He applies a practical remedy. By careful specification of Goodyear Mechanical Rubber Goods in Hose, Belting, Molded Rubber Goods, or Packing, he keeps countless jobs moving. He saves expense.

He pegs down on results. Your job is textiles. The G.T.M. is experienced and able in your field. He has brought the economical Goodyear Endless Compass (Cord) and Goodyear Compass (Cord) Textile Belts to your high-speed drives — nearly stretchless belts *with cores of rugged cord.* He has specified Goodyear Wingfoot Air Hose, and Goodyear Welding, Water and Steam Hose for the efficiency of your plants. He has guarded your power with Goodyear Packing. The G.T.M. knows mills and the problems of textile manufacturing. He is your man, ready for your job.

. . .

For data on smoothness the G.T.M. can bring to your operation, just write to Goodyear, Akron, Ohio, or Los Angeles, California.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS MOLDED GOODS HOSE PACKING

New Textile Equipment and Publications

ARTISTIC LINES APPLIED TO INDUSTRIAL MOTORS.

A new loom motor, developed by Westinghouse Electric and Manufacturing Company, incorporates in its design the three essential features for loom service. These are mechanical strength, high electrical efficiency, high power factor and adequate overload capacity, according to the company. One feature claimed by the company is that in designing this motor the engineers did the unusual by obtaining the assistance of a commercial artist, and for the first time particular care was taken to incorporate an artistic and pleasing

New Loom Motor.

appearance in the design of a motor of this type, which causes the motor to blend in outline with the loom that it drives.

The company also claims the following features for the motor: the motor will carry sustained overloads for long periods of time without being damaged; the oiling arrangement is convenient and accessible; a snap lid on the oil cup prevents seepage; and an oil overflow is provided to conduct excess oil outside the motor at a point which makes it instantly apparent that too much oil is being used.

It is also pointed out that the motor possesses arc welded stator and rotor, vibration proof conduit fitting, moisture proof insulation and mounting, easily adaptable for wall, floor or ceiling operation.

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PYROGENE AND THIOPHENOL DYESTUFFS.

The Society of Chemical Industry in Basel recently announced that card No. 718 replaces the prior card No. 582 and contains besides the already known types, the newly acquired products which are illustrated by sixty dyeings. The dyeing of cotton in all its different stages of manufacture is also described, and a section of the Pyrogene and Thiophenol dyestuffs is to be found —its properties and application grouped as to fastness to light, solubility, fastness to acetic acid, hydrochloric acid, acid boil, laundering, soap boil, mercerizing, alkali, etc., it is pointed out by the society. The society is represented by Ciba Co., Inc., Cedar and Washington Streets, New York City, in this country.

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ANTHRENE GREEN R C PASTE.

Newport Chemical Works, Inc., recently placed Anthrene Green R. C. Paste, a new dye, upon the market. The company states that its excellent fastness to light and very good fastness to weather make it of interest for dyeing all materials subjected to weather exposure. Its fastness generally to other color destroying influences may be called quite good, the company adds.

Other advantages pointed out by the company are: it dyes rayon as well as cotton in all stages of manufacture; reduces easily, levels and penetrates well and exhausts gradually. Also, it does not discharge to a satisfactory white.

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CUTLER-HAMMER, INC., ACQUIRES NEW LINE OF PRODUCTS.

Effective August 1, 1930, the Reynolite division of the Reynolds Spring Co., Jackson, Michigan, became the wholly owned subsidiary of Cutler-Hammer, Inc., according to recent announcement by the latter company. Cutler-Hammer pointed out that this brought ino their constantly growing line, the well known and widely sold Reynolite products, bakelite flush plates, plural plugs, etc. It is said that the Reynolite name marked the first flush plates molded of bakelite.

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FINISHING FACTS.

Rodney Hunt Machine Co., Orange, Mass., recently published a very descriptive little pamphlet, entitled, "Finishing Facts," which gives illustrations and short descriptions of four new machines recently put on the market by the company. The new machines are: Combination Washer and Dye Kettles; "Clipper" Cloth Washers; "Slack Loop" Bleach House washers; and New Silk Dye Becks—Type SK. The pamphlet along with other information will be furnished anyone writing the above company at 104 Mill St., Orange, Mass.

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CONTROL FOR REVERSING SMALL MOTORS.

The General Electric Company announces a convenient reversing equipment for small motors, CR-7009-B-19. This switch, they state, is designed to handle squirrel-cage motors rated 1½ horsepower at 110 volts, and 2 horsepower at 220, 440, 550 and 600 volts, 25 to 60 cycle.

It is pointed out that the switch consists of two contactors mechanically interlocked and having four sets of contacts and terminals. Three of these contact sets are for power circuts and the remaining one is for the holding circuit of the coil. The terminals are front conneeted and are marked to facilitate wiring. A three button ("Forward" "Reverse" "Stop") pushbutton station is recommended for a control switch.

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ORNAMENTAL IRON AND WIRE WORK.

Badger Wire & Iron Works, Milwaukee, Wis., recently published Catalog No. 8, entitled "Ornamental Iron and Wire Work." The company states that while the size of the catalog precludes showing everything within the range of their facilities, they are hoping that it will give a fairly comprehensive idea of their principal products.

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ACE HARD RUBBER PROTECTION.

"Ace Hard Rubber Protection" is the name of the new catalog recently published by American Hard Rubber Company, 11 Mercer Street, New York City. The catalog gives numerous illustrations and descriptive data pertaining to the numerous products made by the company. It is devoted primarily for chemical process industries.

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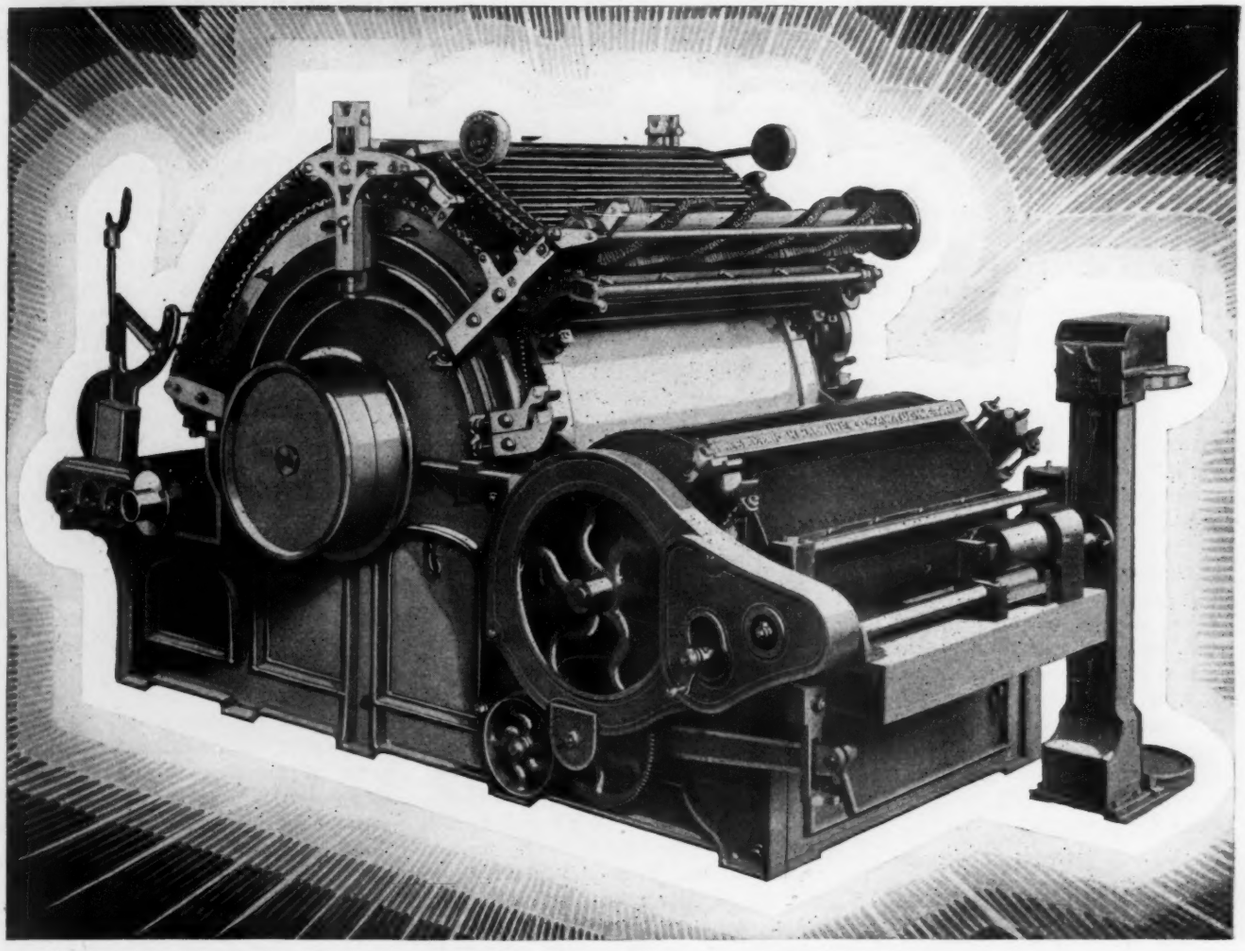
NEW CLUTCH TYPE MOTOR.

The Westinghouse Electric and Manufacturing Company announces a new high starting torque, ¼ horsepower, 1725 r.p.m., split phase motor, identified as the Type CAH Clutch Motor, for which the starting current is constant regardless of the load, making it especially suitable for driving small machines which are sold for operation on 110 volt lighting circuits, and which



THE ACE OF CARDS

Points of Superiority

- Rigid Bend, mathematically correct at all stages of wear of the wire.
- Perfect concentricity of Flats to Cylinder. Cylinder Pedestals are adjustable.
- Arrangement for adjusting Flats whereby accuracy to the thousandth part of an inch is obtained.
- Better quality of yarn made from the same cotton, or equally good yarn made from cheaper cotton.
- Patent method of securing Clothing to the Flats, neatest, cleanest and most effective.
- Patent Top Flat Grinding Arrangement for grinding from the working seating of the Flats.
- Patent Flat Stripping Motion which insures perfect stripping without damage to the Clothing on the Flats.
- Back Bends or Circles for supporting Flats and preventing sagging and stretching of chains.

Performance figures, specifications and names of users gladly sent upon request.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY

must, therefore, meet the current requirements established by certain utility companies.

The design of the clutch mechanism, which gives the motor the very high starting torque, makes it possible for it to start heavy loads, the company states. It is pointed out that under normal conditions, the motor carries the load up to speed in the same manner as an ordinary split phase motor, but that in cases where the load is stiff, or is difficult to start because of thick oil or compression as in the case of pumps or compressors, the motor delivers a series of power impulses that tend to overcome the static friction and inertia of the load, and bring it up to speed. According to the company, these power impulses increase until the load is started, or until approximately 680 per cent full load torque is developed.

The company states that the motor is ideally suited for driving household machines such as washing machines, ironers, etc., and small industrial machines such as pumps and compressors.

A detailed description of the operation and construction of the Type CAH Clutch Motor is contained in Leaflet No. 20473, an illustrated publication of the Westinghouse Electric and Manufacturing Company.

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NEW BULLETIN ON CAPACITIES OF FISHER SPECIALTIES.

For the past several years there has been an urgent demand for accurate capacity charts and information on the flow of fluid through double seated valve bodies, according to the Fisher Governor Company, who announce that their new Fisher Bulletin covers this information for all gases and liquids.

The chart and capacity data in this new bulletin are the results of more than two years' work by the research department of this company, it is pointed out. The company also says that during the past there have been many charts and formulas evolved to apply to double ported valves but it has been found during the tests conducted by The Fisher Governor Company that theory and set formulas will not apply to these problems; this being due to the different designs and interior constructions of the valve bodies.

With these charts a prospective customer of Fisher Specialties can determine the exact size of control devices needed to handle the volume on the installation in question, and can, therefore, in many cases, use a smaller valve than would regularly be purchased, which will mean a direct and immediate saving to the customer, the company adds. They also say that it will assist them by elliminating oversized valve trouble jobs, which, when the fact that 90 per cent of all trouble on this type of valve is due to the units being too large for volume necessary to pass through, will mean quite a bit.

The Fisher Governor Company, Marshalltown, Iowa, will be glad to furnish anyone interested this new bulletin.

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PONSOL VIOLET AR PASTE.

E. I. Du Pont De Nemours & Co., Inc., Wilmington, Del., recently put a new vat color, Ponsol Violet AR Paste, on the market. The dyeing instructions and properties of this dye are given in pamphlet E. 435, which is published by the Dyestuffs Department of the above mentioned company.

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NEWPORT WOOL BLUE GL; BL

Newport Wool Blue GL; BL is the name of the new dyestuff recently offered to the trade by Newport Chemical Works, Inc., Passaic, New Jersey. These colors are generally applied in a weakly acid bath, but they can also be used on a chrome mordant, or according to the monochrome or afterchrome method with little alteration in shade, the company states. They also add that because of their good fastness to light and fulling they are excellent shading colors for wool or worsted suiting materials. It is also pointed out that their brilliancy makes them valuable for this purpose.

LINK-BELT ISSUES NEW DATA BOOK ON BELT CONVEYORS.

Link-Belt Company, 300 W. Perishing Rd., Chicago, has prepared a 176 page data book, No. 1615, on belt conveyors. The company states that this flexible covered book has been prepared to facilitate the selection and application of the proper type of belt conveyor for handling any material in quantities desired, and that the book has aptly been called, "The New Testament of Conveying Methods." The company advises that the book be placed in every practical and technical man's library. It is being distributed gratis, upon request.

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NEW CATALOGUE ON PORTABLE AIR PAINTERS.

Gast Manufacturing Corporation, Bridgman, Michigan, have recently issued a new catalogue covering their line of Gast "Less-Fog" Portable Air Painters, which gives complete descriptions of the equipment in question, showing various industrial and other applications. Detailed information concerning the construction and operation of the gun, the compressor, and other parts of the Gast Air Painter for spray painting purposes are given. The comprehensive range of models for various appplications is illustrated and described. Interesting information concerning the use of such equipment in the maintenance painting work of mill building interiors, village houses, etc., together with the possibilities in the application of this method of painting, are given.

NEWS ITEMS *with a Textile Slant*

SERVICE, TRADE MARK AND GOOD WILL SOLD.

Standard Brands, Inc., the organization that was formed last year by J. P. Morgan and Company through the merger of the Fleishman Company, Royal Baking Powder Company, E. W. Gillet, Ltd., and Chase and Sanborn Company, has purchased from Byron G. Moon, of New York City and Troy, New York, all of the trade mark rights and good will of Standard Brand Service, as well as the copyrighted name of the monthly publication of that organization—The Standard Brand.

Mr. Moon stated that while the rights to the trade mark and good will of Standard Brand Service had changed hands, it was distinctly understood that no transfer to Standard Brands, Inc., had been made of retailer or wholesaler lists of names that had been compiled, nor any of the confidential information or data that had been supplied by the manufacturers and wholesalers who had been associated in the enterprise.

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TYPING FROM AFAR.

The Credit Clearing House have announced that the Telephone-Typewriter, the most recent contribution of science to the speed of communication, has been added to their credit service. They state that by this new hook-up their offices in Chicago, St. Louis, Cleveland, Pittsburgh, Baltimore, Philadelphia, and Boston will be directly linked

HALTON'S JACQUARDS CAN BE BOUGHT ON MONTHLY PAYMENTS. WRITE FOR DETAILS.

"Only a super-manufacturer can afford to operate obsolete machinery—and most of us are only average men."

*—Editorial from Leading Textile Publication**

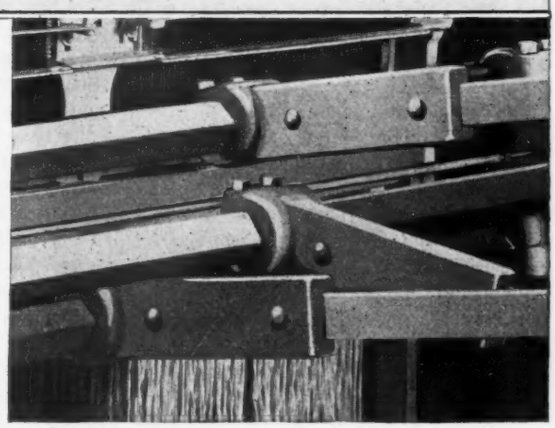
But what "super-manufacturer" does?

Leaders in the textile industry continue to make good profits—and about 50% of the reason is attributed to the fact that they demand a profit from every machine in operation. In view of their aggressive prosperity, perhaps they may be classed as "super-manufacturers"—and even they can't afford obsolete machinery.

Any mill can throw off the handicap of obsolete machinery and start from scratch with the profit-makers in the industry who point to Halton's Jacquards as an item of great importance in their modern production methods.

Change to Halton's Jacquards! Let the profits which accrue from less costly performance, greater versatility in design, and quicker adjustments to the pattern of the moment, pay for new machinery thru the Halton Finance Plan. If Halton's Jacquards don't contribute to profit—why does H. R. Mallison use them, or such mills as Halifax Cotton Mills, or Bigelow-Sanford Carpet Co., or Southern Pile Fabric Co.?

*Name on request.



Levers and rocker shafts are built in sections for adjustments and economical replacement in case of accident. Our catalogue will show you other cost reducing improvements.

HALTON'S JACQUARDS

THOMAS HALTON'S SONS • • • "C" and Clearfield, Philadelphia

SELLING AGENTS

H. A. FORBES
PATERSON, N. J.

THOMAS S. CAPPER, INC.
CHARLOTTE, N. C.

FRED H. WHITE
CHARLOTTE, N. C.

to their central office in New York.

They point out that this new service will enable their members working in their Chicago office to have their inquiries answered the same day they are received. "These inquiries will have been transmitted to our central in New York, where they are referred to our various credit men, recorded on our master cards, reviewed, and a credit checking recommendation made and returned to the forwarding office—all in a few hours," according to the company.

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TELEPHONE RATES CUT TO SOUTH AMERICA.

A general reduction of $6 has been made by the American Telephone and Telegraph Company on all telephone calls between North and South America, according to recent announcement by that company. They state that with this new schedule of rates the cost of a conversation between New York and Buenos Aires is now $30 for the first three minutes and $10 for each additional minute, instead of the former rates of $36 and $12 respectively.

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GROUP LIFE INSURANCE.

Two organizations engaged in the textile industry have recently endorsed the group life insurance idea for the protection of their employees.

They are the Slatedale Knitting Mill, of Slatedale, Pa., which company insured their workers for $74,500, and the Tower Hosiery Mills, Inc., of Burlington, N. C., insuring the lives of their employees for $62,500.

In each instance the employees are insured in amounts ranging from $1,000 to $2500, according to the rank or position held and both policies are of the contributory type; the employees themselves paying a part of the premiums and the employing company assuming the remainder of the expense.

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READY MADE DRESSINGS.

Extension of its line of ready made dressings for hospitals was recently announced by Lewis Manufacturing Company, Division of the Kendall Company. The announcement declares that the extension was prompted by the wide acceptance by hospitals of the ready made dressings idea, originated by the Lewis Company several years ago. Former practice was for hospitals to prepare their own dressings from bolts of surgical gauze supplied by various textile mills.

It is pointed out that the Lewis Company's researches indicated that hospitals could simplify their dressings technique and save time and money by purchasing many dressings already cut, folded and ready for sterilization and use. A specialized advertising and selling effort is under way in behalf of the new line.

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LINK-BELT MOVES INTO NEW PLANT.

Link-Belt Company, Pacific Division, recently moved into their new manufacturing plant and office, which is located at Paul Avenue near Bayshore Highway, San Francisco, California, from their old plant in a different section of the city.

The company states that this plant is a modern plant, employing the latest designs in tools, most up-to-date production methods, and maintaining an engineering organization capable of applying labor-saving machinery for every industry.

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MUNDET & SON, INC., OPEN NEW BRANCH OFFICE.

L. Mundet & Son, Inc., announce that they have just opened a direct branch office at 66 Main St., Buffalo, N. Y. Willard A. Selle, formerly manager of the Memphis, Tenn., branch, will be in charge of the new Buffalo office.

The company says that in the warehouse at the above Buffalo address, it is intended to carry a full line of stock such as Mundet "Jointite" cork board for all cold insulation service, as well as for roofing, flooring, etc.

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MOTOR GIVES UNUSUAL SERVICE.

Still efficient after 21 years of unusually severe service in a textile mill, is the record claimed by the Westinghouse Company for one of their motors which was recently overhauled in the Pittsburgh Service Shop of the Westinghouse Electric and Manufacturing Company.

The motor was used on a waste chopper in a textile mill, and was extremely dirty with lint and dust, the company says.

21 years old!

It is pointed out that in its long service the motor bearings were rebabbitted three times due to lint filling the oil reservoir and preventing the oil rings from turning, and that in the past ten years the motor has been on fire three times due to the lint taking fire from friction and each time a hose was turned on the windings and the motor was allowed to stand for twenty-four hours before being put back into service. It is stated that the motor has been operating eight hours a day at practically rated capacity.

The motor is a Westinghouse 10 hp. CCL motor, 200 volts, 60 cycle, 2 phase, 840 r.p.m.

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MOVE TO LARGER QUARTERS.

International Filter Co., and associated companies, International Water Softener Co. and General Zeolite Co., announce that expansion of their manufacturing facilities required the removal of their general offices and engineering departments from plant No. 1 at 333 W. 25th Place, Chicago, to larger quarters covering the 13th and part of the 14th floor of the Buckingham Building, 59 E. Van Buren St., Chicago, Ill.

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TEXTILE SPECIALTIES BEING INVESTIGATED ABROAD.

Textile Specialties in Great Britain, France and Germany are being investifated by Walter Myers of the American Aniline & Extract Company, according to recent announcement by that company. It is stated that Mr. Myers' mission is to negotiate for the purchase of American rights to new products and processes that can be used to advantage by the textile industry in this country. If his quest is successful, the company states, the American Aniline & Extract Company will offer the new lines early in the Fall.

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PILOT MILLS CHANGE METHOD OF SELLING HALF-HOSE.

Pilot Hosiery Mills, Inc., Asheboro, N. C., have announced the appointment of E. M. Townsend & Company, 345 Broadway, New York, as their exclusive representative of their entire line of men's fancy half-hose, effective July 1st. The Pilot line was formerly sold through the offices of several mill agents, and the appointment of E. M. Townsend and Company as exclusive representatives for the line is a radical change of policy. This, the company states, was arrived at after an intensive study of markets, marketing conditions, etc. The new Pilot line for fall, it is stated, will be more attractive than ever, consisting of new constructions, new designs, new combinations of yarn, patterns and ideas.

W H BANNON President H R STEPHENSON Sec & Treas. R J STEPHENSON Jr. Gen Mgr

PIEDMONT PRINT WORKS
INCORPORATED

JOS B WARNE
SALES AGENT
40 WORTH ST
NEW YORK

TAYLORS, S.C.

May 16, 1930

Mr. J. B. Walker, Lubricating Engineer
Greenwood, South Carolina

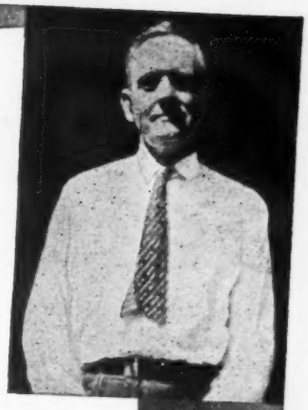
Dear Sir:

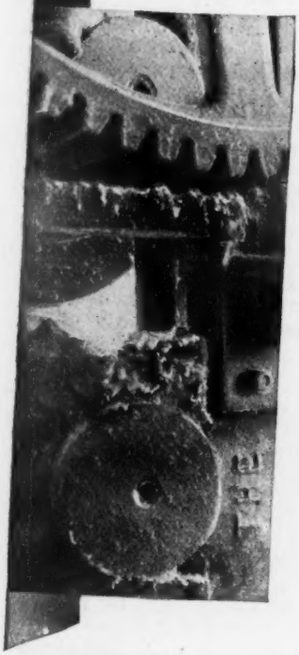
It might interest you to know of the wonderful success we have had with your 906 grease for the lubrication of our Calendar Rolls in the finishing plant. If you recall in March of last year you made the original application of this grease in our plant and on one journal in particular. A block of grease weighing approximately twelve pounds was applied to the journal, and this block of grease is still there.

No other lubrication of any nature has been used nor has any grease been added to the journal and there is sufficient grease in my estimation to furnish lubrication for the remainder of the year. This in my opinion is out of the ordinary as this grease has already been in use about fourteen months and I am sure that this block will last at least six months longer.

Yours very truly,

L D Misenheimer
M. M.





Excessive bearing pressures Temperatures of 300° Fahrenheit

--and Texaco Grease No. 906 solves the lubrication problem in a remarkable manner.

Read what Mr. Misenheimer says. His experience with Texaco lubricants is the experience of many others. The Piedmont Print Works of South Carolina, and a large percentage of all the country's textile mills, are 100 per cent Texaco lubricated. Write The Texas Company about lubricants and lubrication. Inquiries are always welcome. You, too, will find Texaco Lubrication Service the kind you'll appreciate.

TEXACO

THE TEXAS COMPANY
135 East 42nd Street, New York City

TEXACO LUBRICANTS

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

W. A. Marshall, for more than thirty-five years superintendent of the Pepperell Mfg. Co., at Lindale, Ga., formerly Massachusetts Cotton Mills, died suddenly of a heart attack on Monday, August 25th, while entering the Lindale ball park. Mr. Marshall was 58 years of age. After his long tenure as superintendent, he was made assistant agent of the property a little more than a year ago.

Carl R. Harris became manufacturing engineer of the Erwin Cotton Mills Company, with headquarters in Durham, N. C., and plants in several North Carolina towns, effective September 1st. Mr. Harris for the past several months had been general superintendent of the Aragon - Baldwin Cotton Mills plants at Chester, Whitmire and Rock Hill, S. C. Before this connection he had been superintendent of the Cooleemee (N. C.) plant of the Erwin Cotton Mills. Prior to going to Cooleemee, Mr. Harris was superintendent at the Inman (S. C.) Mills. He is a graduate of the N. C. State extile School, and received his earlier mill training at the Lancaster Cotton Mills, Lancaster, S. C.

Mr. Harris.

J. T. Crawford, who has been superintendent of the Whitmire plant of Aragon-Baldwin Cotton Mills, has been promoted to general superintendent of the company's three plants, succeeding Mr. Harris. R. L. Wood has been transferred from the Aragon plant of the company at Rock Hill, to succeed Mr. Crawford as superintendent at Whitmire, and John B. Garrett, formerly overseer of weaving at the Monaghan Mill, Greenville, S. C., has become superintendent of the Aragon plant succeeding Mr. Wood.

Walter B. Dillard, Jr., has accepted the position of superintendent at the Riverdale Mills, Enoree, S. C. For about eight months Mr. Dillard has been superintendent of the Peerless Cotton Mills, Thomaston, Ga. Previously he had been for several years assistant superintendent at the Columbus Mfg. Company, Columbus, Ga. He has been a member of the executive committee of the Textile Operating Executives of Georgia.

N. L. Whitten, superintendent of the Thomaston Cotton Mills, Thomaston, Ga., has been made superintendent of the Peerless Cotton Mills, succeeding Mr. Dillard. W. D. Massey has been promoted from overseer of carding to succeed Mr. Whitten at the Thomaston Cotton Mills as su perintendent.

W. H. Gibson, Jr., has become assistant general manager of the Jennings and Mansfield Cotton Mills, at Lumberton, N. C. Until recently, Mr. Gibson was manager of the Aileen Mills, at Biscoe, N. C., having been also superintendent of the Cascade Mills, at Mooresville, N. C., and the Union-Buffalo Mills Co., Union, S. C. He is a past president of the Southern Textile Association.

W. W. Patrick, a director of The Foxboro Company, died suddenly July 11th with pneumonia. He was one of the most widely known figures in the instrument business. He had been associated with the founders of the Foxboro Company since 1899. In 1908 he became New York district sales manager and held that position for twenty-two years.

John A. Spooner was recently appointed merchandising director in charge of sales promotion, advertising and publicity. He succeeded Chester C. Bassett, Jr., who was forced to resign as the result of failing health. Mr. Spooner will step into his new position with the Viscose Company backed by a wealth of experience, giving him a thorough knowledge of textiles and merchandising problems.

Mr. Spooner.

Edward W. Smith, formerly general manager of the Ashland Cotton and Rayon Mills, of Jewett City, Conn., has accepted a position as assistant agent with the Wauregan Mills, Wauregan, Conn. Mr. Smith has been very active for many years in the mill business, both on cotton and rayon. He has been superintendent for ten years with the Berkshire Cotton Mfg. Co., Adams, Mass.

William Piez was recently appointed European correspondent of the Link-Belt Company. The move was made to give closer contact to the Link-Belt agents and customers located in Europe, the British Isles and North Africa.

Alvin B. Storey, a graduate of Lowell Textile Institute, has been promoted from textile engineer to first assistant superintendent of Textile Division of Celanese Corp. of America, Amcelle, Md.

J. L. Channel has been made superintendent of the Enterprise (Ala.) Cotton Mills.

W. P. Tinker recently resigned his position as superintendent of Mill No. 1 of Davenport Hosiery Mills, Chattanooga, Tenn., as the result of ill health.

Frank J. Oakes, 54 year old general superintendent of the Dodge Works of Link-Belt Company, Indianapolis, Indiana, died suddenly at his home, on July 19th, of apoplexy. He was a recognized authority on mechanical engineering and during the world war was selected by the government as a designer and adviser on the manufacture of munitions.

W. W. Barron was recently promoted to manager of The Foxboro Company's Atlanta office. Since 1926 he has been with the Foxboro Company's Cincinnati office. His friends will now find him at 1217 Atlanta Trust Bldg. He will be assisted by **M. C. Welker** and **B. B. Peacock.**

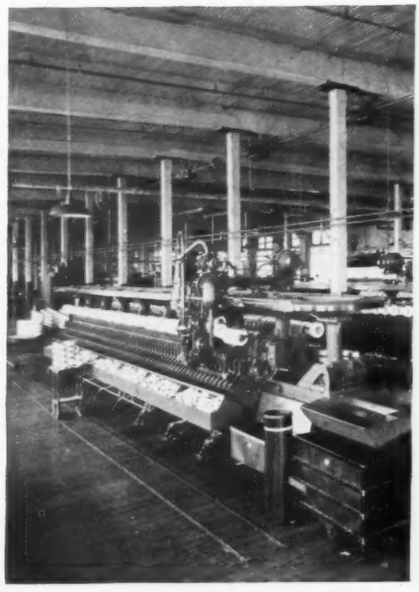
Allen Jones, formerly buyer for the Martel Mills, Inc., is now superintendent of the Clyde Mills, Inc., Newton, N. C.

W. J. Styles has been appointed second hand in weaving at the Marion (N. C.) Mfg. Co.

C. P. Williams, head of the twisting department of the American Enka Corp., Enka, N. C., recently resigned his position.

"EVERY KNOT A WEAVER'S KNOT"

Part of the group of three Automatic Spoolers. The Warpers are just beyond.

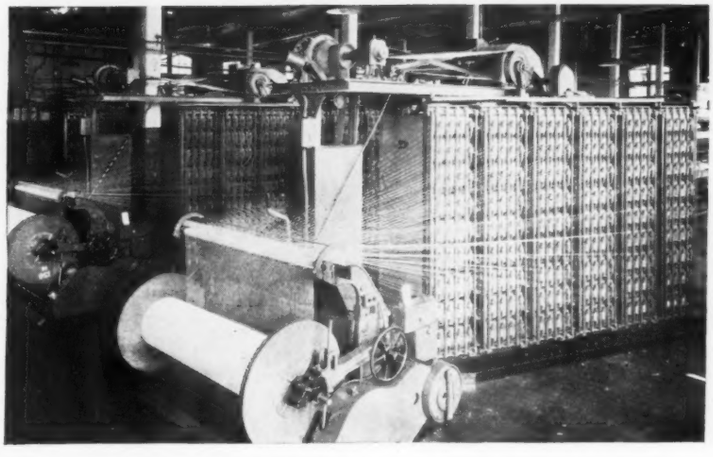


DOMINION TEXTILE CO., LTD.

Mt. Royal Branch

Montreal . . . . P. Q. . . . . Canada

THIS mill, one of the best known in Canada, installed Barber-Colman Spooling and Warping equipment in 1929, and are well satisfied with the performance and production of the machines. Yarn handled is principally 21s and 28s.



The three High Speed Warpers are self-contained units, being fitted with individual electric motor drives.

The Dominion Textile Co., Limited, is a combination of a number of prominent Canadian mills. Barber-Colman Spoolers and Warpers have been adopted and are in use in the Company's mills at Drummondville, Magog, and Sherbrooke, in addition to the Mt. Royal Branch shown here.

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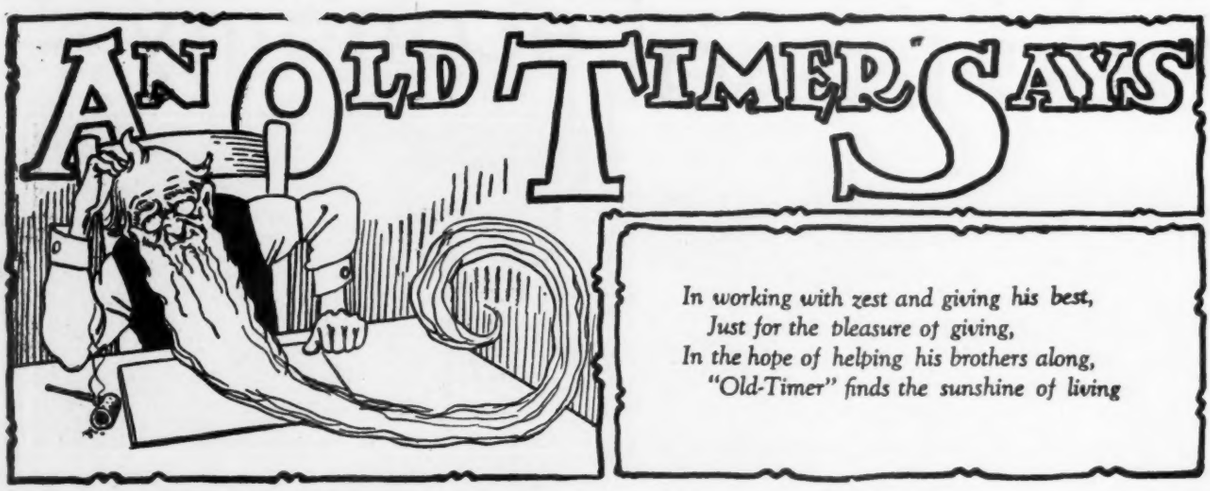

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

THE ARTICLE below was written not only for overseers and superintendents to read—because they are in a sense operatives—but, in case it appeals to you as appropriate, you are advised to post it in the mill for the operatives to read. To this end, we shall gladly furnish to you upon request and without charge, copies of a display placard upon which this article has been reproduced in a size of type and on a card suitable for posting. Merely ask us for copies of the Old-Timer article in September COTTON, and let us know how many copies you desire.

This suggestion is prompted by the fact that while passing through a weave room recently, one of Old-Timer's articles was noted as having been cut out, framed with a glass over it, and posted in a weave room for the operatives to read—Editor COTTON.

Can Your Employer Trust You?

THE FOLLOWING INCIDENT carries a moral for superintendents, overseers, section men and operatives. I have told it many times.

I once visited a friend who is a large farmer, a successful farmer. His father was a successful farmer before him, and while we were looking around at his fine stock and cattle, just about sundown, a very old, gray headed darkey came to the barn, took out his keys, unlocked the crib, and began to get corn out to feed the stock.

The land owner saw I was watching the old darkey, and he began to tell me about him: "That old darkey carried the keys to my father's crib and meat house and now he is too old and feeble to work, but we still depend on him to look after the stock and carry the keys.

"On Sunday we always have let him have a horse or mule to ride to church, while the other darkies had to walk. He sleeps there in that little house in the back-yard and gets his meals in the kitchen."

In other words, fellows, that old darkey had a good home, even after he was too old to work. Why? Anybody can answer, of course. They had learned to *trust* him.

Now, if he had been a chronic grumbler, if he had always opposed his employer in everything he undertook to do—well, it is useless to say more, except to the persons who is running a set of looms, a set of frames, a section, a room, or a mill, or doing any other kind of work for which you are receiving either salary or wages.

Remember, there is a shortage of men to make foremen of, a shortage of section men to make overseers of, a shortage of overseers to make superintendents of, a shortage of superintendents to take more responsible and more remunerative jobs.

Can your employer trust you?

I don't mean can he trust you to be honest only—that is just *one* of the things that the word signifies.

Can he trust you to put forth your very best efforts at all times, whether he is looking at you or whether he is one hundred miles away?

Can he trust you to be absolutely loyal to his interests in everything you do, whether you think he will find it out or not? Can he trust you to use supplies or buy supplies just the same as if you were paying your own money for them?

Can he trust you absolutely to run your looms, your frames, your room or whatever your job is, like you would run it if your own money was invested in it?

Let's get back to the illustration I was making about the farm.

The actual earning power of the average individual is about the same. That is, a man of average physique can cut about as much wood as other men, or shovel about as much dirt, or plow about as much cotton, or do about as much physical work of any kind.

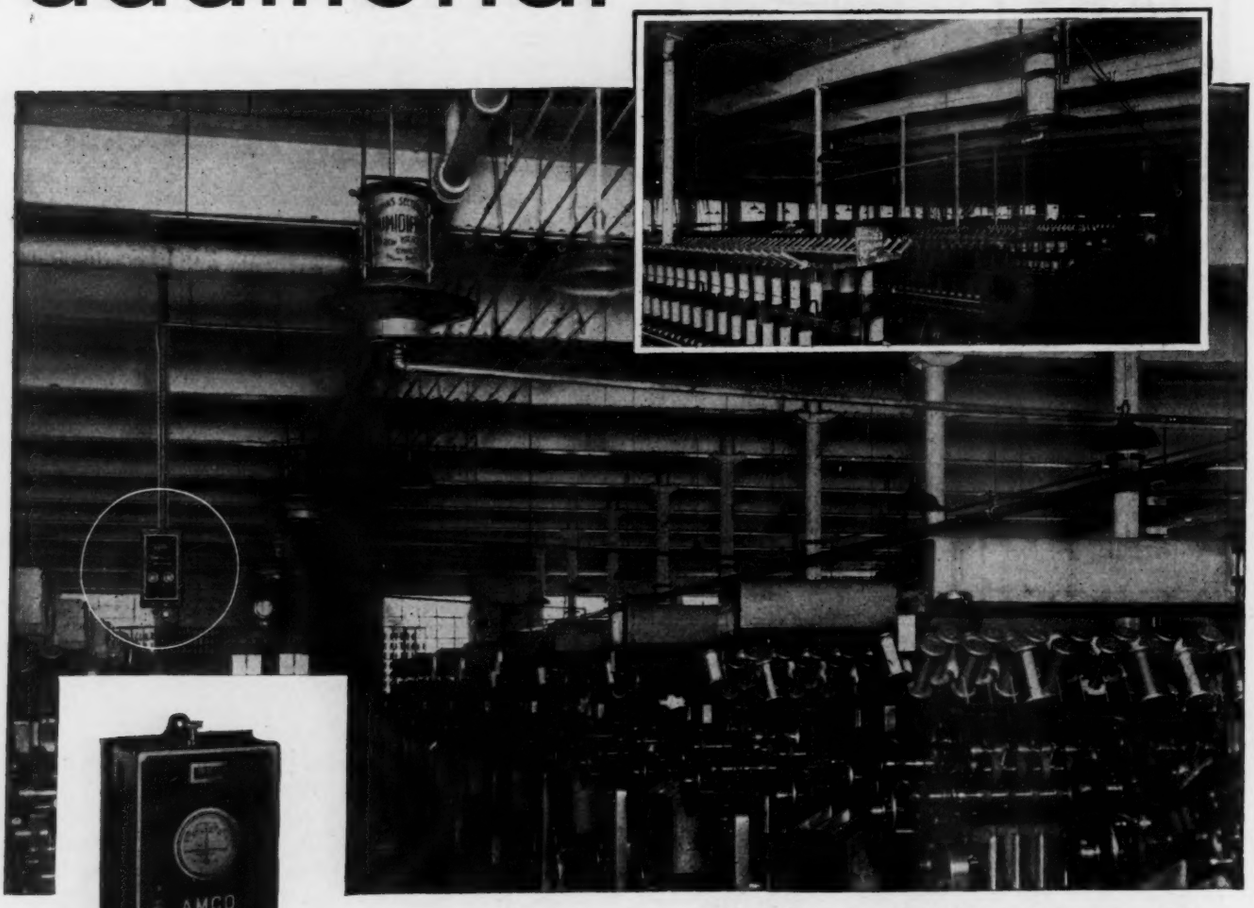
What is it, then, that makes such a difference in the pay envelope?

If you owned a large farm and were having all your farming done by day labor, which required the employment of say twenty men, and you should get badly crippled, which one of your twenty men would you select as your foreman?

The answer is, of course, obvious. You would pick out the one first of all that you could *trust*.

Then you would raise his pay.

additional economy—



This newly designed Amco Humidity Control automatically regulates and controls humidity without using wet or dry bulb actuated devices.

Pictures above show AMCO Humidifiers and one of the Automatic Controls installed in the M. & F. Plant of the well known Paragon Worsted Company, Providence, R. I.

additional economy is the main objective of a mill agent today. Every mill which has installed AMCO Controls as part of their humidification equipment will tell you of the substantial monthly savings on each of several operations.

Even a saving of a few hundred dollars per month mounts up as actual cash in the bank.

AMCO savings have completely exploded the idea that human attention can cope with changing humidity. AMCO Controls are not affected by temperature,—only by moisture.

Our humidification engineers are at your service without charge or obligation to make a written survey of your humidification needs. Get an expert air doctor's advice on humidification requirements in all departments. An air doctor's diagnosis costs you nothing and may result in changing red figures into black figures, with a sweet running plant and better working conditions for labor as a bonus.

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Air Doctors Since 1888

Why? Because he would produce more than the other nineteen men? No. In fact, this foreman would be compelled to stop producing for you with his own hands, because it would now consume all of his time to see that the other nineteen men chop out the cotton the way you want it done, attend to your stock and cattle, keep the tools in fix, and do the things that you would do if you were not crippled. In fact, you are paying this man more money than the other men because you can *trust* him to look after your work just as if the property belonged to him.

This reasoning is so simple that it is almost impossible to account for the way some people do their work. The desire to advance is born in every man, still some will do their work exactly contrary to what they know is the proper way to succeed.

Just try this experiment some time: Pick out several men that you consider would be the last men you would think of promoting. Pick out men who, you know, are criticizing everything the management does, men that you know try their best to discourage their fellow workers every time they have a chance, men that you know will give the boss a knock at every opportunity. Then put this question to them:

What, in your opinion, does it take to enable a man to advance to position of farm foreman, foundry foreman, cotton mill foreman, or any other kind of foreman?

You will probably get the surprise of your life to hear the sensible answers they will give you. In fact, they will very likely tell you just about what you would say in answer to the question yourself.

In fact, there are very few people who do not know what it takes for a man to receive promotion.

Now, if some smart man will just step forward and explain to OLD-TIMER and his readers just why such a condition as this exists, he will be doing a great service for a large number of people.

"Cut off your nose to spite your face," is an axiom which seems to fit pretty well to the class of men we refer to.

No one can refute the statement that there is a shortage of men to make foremen, to make overseers, to make superintendents; all big men will tell you that is their most serious problem.

Then it is generally conceded that all men want to advance.

And OLD-TIMER has never found a man yet who did not have some idea as to what it takes for a man to advance.

Read the three paragraphs above again.

Help! I am in deep water. I'm talking backwards. What is human nature anyway? The three paragraphs referred to above are inconsistent, they contradict each other. However, you can easily prove each one of the statements to yourself with very little trouble.

Why in the world a man will do his work so that it really makes his earnings less, why he will knock every foreman he has ever worked for, why he will knock and plot against the firm that is paying him honest money for every minute he works and for the minutes he deliberately loafs, a firm which is spending a part of its earnings, which would otherwise go to the stockholders, to improve this man's working conditions, to give his children better schooling, doing what they can to induce him to save some part of his earnings so that he can be one of the stockholders, using all kinds of plans, prizes, bonuses, etc., to get him to earn more for himself, a firm that would be glad and is anxious to promote him if he would only turn about and do his work the way he would want you to do it for him.

Oh, heck, the more we try to explain it the further away from an explanation we seem to get.

Say, how about answering my question and OLD-TIMER will shut up:

Can your employer trust you?

Old-Timer Short Shots.

Four big words: "You can be successful"—
Three, a darn sight bigger: "If you will."

An old gentleman walked out to the park to watch the young people skate. He noticed a little boy buckling on a new pair of skates and saw how proud he was of them—but just as soon as the boy jumped out on the floor his feet flew up and the back of his head was the first thing that hit the floor.

The old gentleman smiled as the boy looked all around to see who was looking at him. He rubbed and got up to try it again.

Down he went again and again—until finally he got a pretty good start and it seemed like the skates had perpetual motion in them—he shot down the hall at breakneck speed, up went his feet and down his head, but up he got to try aagin. The old gentleman went over and picked him up and by this time he was getting sorry for the boy because his last fall against the wall just about knocked the breath out of him. "Son," said the old man, "come over and sit on the bench with me and watch the others skate." The boy looked from the old man down to the pair of new skates, "Mister," he said, "I didn't get these new skates to quit with," and out he went again to get more hard knocks.

Gosh! If some overseers were only made out of that kind of stuff!

Keep constantly saying to yourself: I am going to run my job better. I am going to prove myself more valuable to my employer. Then do it. And that better job will soon show up.

We build our future an inch at a time. Do you realize that fact?

If you are not on the job early yourself, don't expect your second hands and section men to be there early.

We all go up and down together. Have you ever thought about it? Better cooperate.

Leadership

Leadership is the guiding power of business at work. It represents the confidence and faith of the many in the few. It is responsible for the profits of business—for the livelihood of workers. It is the trusteeship of success.

Especially do conditions today demand real leadership—knowledge, vision, fighting determination and courage. Dependable information must be more constructively used. Inefficiencies must be eliminated, more competent organization built-up, better methods adopted—to prevent loss and insure profits and good-will.

Leadership is blind without knowledge. Knowledge of one's business comes from the analysis of facts incident to sound planning, and from the frequent comparison of operating results with a well-made budget. Such analyses and comparisons point out weakness and waste, suggest better methods, indicate new sources of profit. They are chart and compass to renewed progress and greater success.

ERNST & ERNST

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AKRON, ATLANTA, BALTIMORE, BIRMINGHAM, BOSTON, BUFFALO, CANTON, CHICAGO, CINCINNATI, CLEVELAND, COLUMBUS, DALLAS, DAVENPORT, DAYTON, DENVER, DETROIT, ERIE, FORT WAYNE, FORT WORTH, GRAND RAPIDS, HARTFORD, HOUSTON, HUNTINGTON, W.VA., INDIANAPOLIS, JACKSON, MISS., KALAMAZOO, KANSAS CITY, LOS ANGELES, LOUISVILLE, MEMPHIS, MIAMI, MILWAUKEE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, OMAHA, PHILADELPHIA, PITTSBURGH, PORTLAND, ME., PROVIDENCE, READING, RICHMOND, ROCHESTER, ST. LOUIS, ST. PAUL, SAN ANTONIO, SAN FRANCISCO, SEATTLE, TAMPA, TOLEDO, TULSA, WACO, WASHINGTON, WHEELING, WILMINGTON, DEL., WINSTON-SALEM, YOUNGSTOWN

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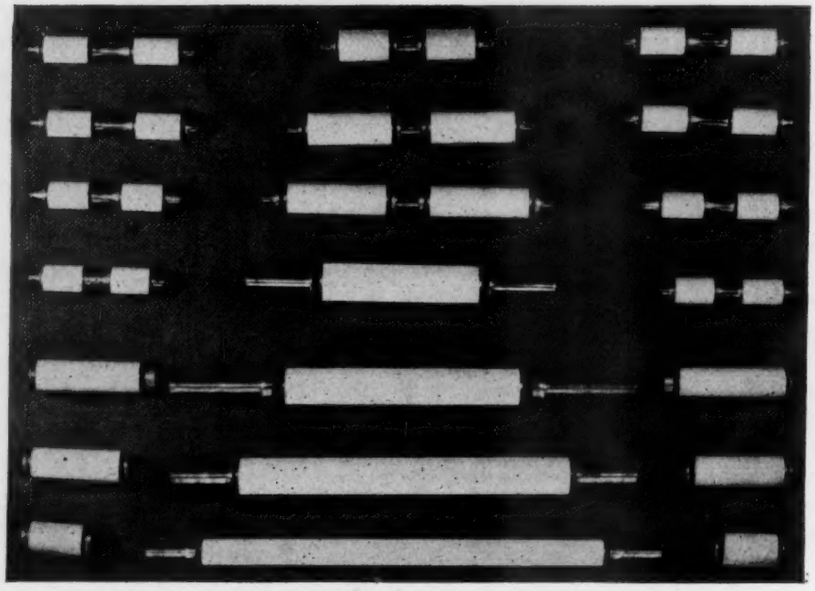
Roller, Clearer and Slasher Cloths. Stamping Blankets our specialty.

Our Southern Sales Manager, Clarence B. Seal, will gladly assist you on felt cloth problems. Address inquiries to Philadelphia.



PHILADELPHIA FELT COMPANY

FRANKFORD, PHILADELPHIA, PA.

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Controlling Bad Work from the Card Room.

EDITOR COTTON:

I noted the question submitted by "CONTRIBUTOR No. 4759" in regard to describing methods of how to correct and prevent bad roving, such as slugs, black oil, singles, doubles, etc., coming from the card room to the spinning room.

About three years ago we were very much worried with this item of bad work from the card room, until it was becoming quite a nuisance. The question was being debated in the minds of the overseers, and finally it was brought forth for discussion in the overseers' second hands' and section men's meeting, and through discussion and consideration, the following methods were adopted step by step for improving the roving.

At first, an inspector was placed in each of the spinning rooms for the mere purpose of inspecting the creels as often as she could make the rounds, taking out the bad work as she detected it, and each of the spinners was instructed to remove all bad work that they saw while going over their sides. At intervals, some two or three hours apart, this inspector would take up this work that had been laid on the roving board; each item was classified and counted, a daily report being sent to the overseer and second hand of the department affected, both spinning and carding. This report was examined and rechecked by the bad work returned, and at the end of each week a summary was issued, turned over to the responsible heads, and comparisons made with former reports.

In the routine of this, each frame hand was given a certain color of chalk with which to mark his or her roving, a roving marker put on, marking every bobbin produced, and order issued that after a certain date all bad work such as singles and doubles in excess of two bobbins per operative per day would be charged to the operative at the rate of five cents per bobbin, this being conducive to be more careful in regard to the work produced.

Slugs are usually caused by clearer waste or fly running or falling into the running work. To correct this we should start at the card. On brushing down days, that is on the days when we stop to brush the ceiling, the ends should be cut out on the cards, and the machines well brushed off before starting again —that is, the doffer, bonnet, coiler head, etc., and then when the end is started through again, the portion between the calender rolls and the coiler head should be taken out of the sliver and the ends spliced. This will serve as a preventive of slugs on the cards.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

On the drawing frame, we nailed strips to the floor just back of the sampsons to keep the drawing hands from pushing the cans of drawing up under the frame, and such waste as is usually found on the back of the drawing frames was not allowed to fall into the cans, and thus go into the finished work. The clearers were taken into consideration and it was finally decided to have them picked after each three doffs of the drawing frame, stopping the frame, picking the clearers, and running some three to five yards, depositing this in the waste can, putting empty cans under the drawing frame and then starting them up. The fluted rolls are picked thoroughly each day.

On the fly frames, the steel roll clearers on the slubbers and intermediates are picked every two doffs, and steel roll clearers were put on all speeders that were running 3.00-hank or heavier roving, and picked four times a day; and while doing this, the top clearers were also picked with the frame stopped. The flyers were picked each doff, the roller beams wiped, and the brushing of the carriages with a rail or whisk broom was discontinued, using a loom brush instead, since this does not cause a lot of loose cotton to fly in every direction and into the work while performing this operation.

The black oil situation has been greatly remedied by having the section men do their own oiling, meanwhile the frame hands oil the bobbin gears and spindles twice weekly, and wipe the tops of the spindles with oil once weekly, thus eliminating stuck flyers. The section men oil the roll stands once each week.

After using these methods for a few months, the bad work was greatly reduced to the extent that it was not necessary to continue the inspector. Although these rules are regular, however simple, the section men are held responsible for their execution and are not allowed to deviate from them.

I might further state that we are running on white work for the rubber trade and other miscellaneous items, 7s to 30s, using a good grade of Delta and Texas cotton, carded, and carded and combed.

J. R. (GA.)

Theoretical Twist *versus* Actual Twist

By A. F. Bissonnette
F. P. Sheldon Sons Co.

THIS article appeared originally in the April, 1929, issue of "The Traveler," house organ of the Victor Ring Traveler Company, Providence, R. I., from which it is reprinted by permission.

It is published here in connection with the current discussion in this department regarding the relation of the traveler and spindle in inserting twist in yarn. Mr. Bissonnette makes some unusual tests and reports his findings, stressing the variation in twist in yarn at the different positions of the ring rail, and the effect of the speed of the ring rail upon the speed of the traveler, and therefore upon the twist inserted in the yarn. We believe this article will be interesting to you.—The Editor.

WHEN CALCULATING TWIST the spindle is always thought of as the object which puts the twist in the yarn, but, when calculating the actual twist it is the speed of the traveler which is considered and not the speed of the spindle. Therefore, it is the traveler which does the twisting. It of course is like our army and navy during the World War; the soldiers did the fighting but it was the "gobs" who took them across, and neither could have done anything without the aid of the other.

The theoretical twist as is ordinarily calculated from the spindle and front roll speeds in formula form equals

$$\frac{\text{Spindle speed}}{\text{F. roll speed} \times \text{Circumf. F. roll}} = \text{Turns per inch.}$$

This of course is not exactly true, because the traveler which puts the twist in never turns as fast as the spindle.

Let us now consider the action of the traveler in regard to twisting and winding of the yarn. A fact known by every spinner is that the bobbin diameter is a factor which affects the traveler speed and therefore the twist. This traveler speed, which should be substituted for the *spindle speed* in the above formula equals

$$\text{Spindle speed} - \left(\text{F. roll speed} \times \frac{\text{F. roll diam.}}{\text{Bobbin diam. at any point}}\right) = \text{Traveler speed.}$$

From this it can be seen that the traveler speed is varying all the time since the bobbin diameter is continuously changing for filling wind.

There is still another factor which affects the speed of the traveler, and that is the speed of the ring rail. For the sake of illustration let us consider a frame on which the ring rail travels as fast as the delivery of the front roll. On the downward stroke of the rail no yarn would be wound on the bobbin, because the rail would take up the yarn as fast as the front roll delivered it and in this case the twist would be equal to the spindle revolutions divided by the length of yarn delivered by the front roll. On the upward stroke of the rail twice as much yarn would pass through the traveler as the front roll would deliver, because the rail traveling in opposite direction to the delivery of yarn from the front roll would cause twice as much yarn to be delivered to the bobbin for the same number of revolutions of the spindle and consequently the twist per inch would be only half as much as for the downward stroke of the rail.

These relative speeds of ring rail to front roll are never attained in practice, but nevertheless for practical ratios the effect is in a proportionate degree.

When calculating the twist for fine, or even medium, counts the front roll and spindle speeds are all that are necessary for all practical purposes as the error is negligible, but for coarse counts with soft twist and large rings the error amounts to an item worthy of consideration. Example:

Filling yarn, 3.90s
Twist multiplier, 3.00
Spindle speed, 3600 r.p.m.
Front roll, 1 in. diam. at 196 r.p.m.
Full bobbin diam., 1½ in.
Bare bobbin barrel, ½ in.
Length of traverse, 1¾ in.

To facilitate the unwinding of the yarn and prevent sloughing off at the loom approximately four times as much yarn should be wound on the upstroke of the ring rail as on the downstroke. For our example we shall assume 72 in. and 18 in. respectively.

With the above information the speed of the rail on the upstroke then equals:

$$\textit{Upstroke} = \frac{1\frac{3}{4}'' \times 196 \times 1 \times 3.14}{72'' \text{ of yarn}} = 15'' \text{ per min.}$$

$$\textit{Downstroke} = \frac{1\frac{3}{4}'' \times 196 \times 1 \times 3.14}{18'' \text{ of yarn}} = 60'' \text{ per min.}$$

The traveler speed at four different points of the traverse, neglecting the contraction, may now be calculated by the following formulas:

(Use + for upstroke)
(Use — for downstroke)

$$\text{Spindle speed} - \frac{\text{F. roll speed} \times 3.14 \mp \text{rail speed}}{\text{Bobbin diam. at any point} \times 3.14} = \text{r.p.m. of traveler.}$$

Just before the ring rail reaches the bottom of traverse, the traveler speed equals:

$$3600 - \frac{196 \times 3.14 - 60''}{1\frac{1}{2}'' \times 3.14} = 3482 \text{ r.p.m.}$$

Rail just leaving bottom of traverse:

$$3600 - \frac{196 \times 3.14 + 15''}{1\frac{1}{2}'' \times 3.14} = 3466 \text{ r.p.m.}$$

Rail just leaving top of traverse:

$$3600 - \frac{196 \times 3.14 - 60''}{\frac{1}{2}'' \times 3.14} = 3246 \text{ r.p.m.}$$

Rail just before reaching top of traverse:

$$3600 - \frac{196 \times 3.14 + 15''}{\frac{1}{2}'' \times 3.14} = 3198 \text{ r.p.m.}$$

Twist per inch from spindle speed:

$$\frac{3600}{196 \times 3.14} = 5.85$$

Twist per inch from lowest traveler speed:

$$\frac{3198}{196 \times 3.14} = 5.18$$

5.85 — 5.18 = .67 difference.

The theoretical twist therefore is:

$$\frac{.67 \times 100}{5.18} = 12.9 \text{ per cent more than actual.}$$

On some spinning frames the rail goes up fast and comes down slow, which is the reverse of the example just illustrated. In that case the highest traveler speed would be:

$$3600 - \frac{196 \times 3.14 - 15''}{1\frac{1}{2}'' \times 3.14} = 3473 \text{ r.p.m.}$$

and the lowest would be:

$$3600 - \frac{196 \times 3.14 + 60''}{\frac{1}{2}'' \times 3.14} = 3170 \text{ r.p.m.}$$

Lowest twist per inch then becomes:

$$\frac{3170}{196 \times 3.14} = 5.15$$

5.85 — 5.15 = .70 difference,

and the theoretical twist equals

$$\frac{.70 \times 100}{5.15} = 13.6 \text{ per cent more than the actual.}$$

The twist multiplier based on 5.15 turns equals 2.61 instead of 3.00. It is no wonder that with such low twist multiplier in part of the yarn the thick places receive very little twist and are the cause of weak spots in the yarn.

Comments on "Traveler" Article.

A TEXTILE ENGINEER who saw Mr. Bissonnette's article before reprinting has supplied the following interesting comment on the subject. He offers the point that the twist variation in spinning, as explained by Mr. Bissonnette, is compensated for exactly, when the yarn is taken off of the bobbin by winding or spooling over-end, the bobbin remaining stationary. This, he says, is one of the best features of filling-wound spinning, because such bobbins are always wound over-end. You are invited to comment upon the views expressed in Mr. Bissonnette's article, and in the following comments.—The Editor.

EDITOR COTTON:

The article on "Theoretical Twist Versus Actual Twist," by Mr. Bissonnette, brings up some very interesting points, and there is one point in this article on which I should like to take issue with the author.

The article gives a formula for determining the speed of the ring rail as follows:

$$\text{Upstroke} = \frac{1\frac{3}{4}'' \times 196 \times 1'' \times 3.14}{72'' \text{ of yarn}} = 15'' \text{ per min.}$$

This formula is based upon there being wound 72 inches of yarn *on the bobbin* during the upstroke of the rail. Assuming that 72 inches of yarn are wound on the upstroke, the above formula can be verified as follows:

If one upstroke winds 72 inches of yarn on the bobbin, then the front roll must deliver the same length of yarn, or 72 inches.

$$\frac{72''}{1 \times 3.14} = 22.9 \text{ revolutions of front roll to 1 upstroke.}$$

Front roll speed = 196 r.p.m.

$$\frac{22.9}{196} = .1168 \text{ minute to each upstroke.}$$

Therefore, the rail travels a distance of 1.75 inches in .1168 minute. Then $\frac{1}{.1168} \times 1.75 = 15''$ per minute on upstroke.

By making the proper substitutions in this equation, the original formula becomes exactly as given in the article:

$$\frac{1\frac{3}{4}'' \times 196 \times 1 \times 3.14}{72} = 15'' \text{ per min. on upstroke.}$$

It can be seen, therefore, that this formula is based upon the fact that 72 inches of yarn is wound *on the bobbin* during the *upstroke* of the rail. I do not know how this was obtained unless by pulling the yarn from the bobbin and measuring the length to each upstroke and downstroke. By doing this a sufficient number of times a fairly accurate average should be obtained.

The point upon which I should like to take issue with the author is regarding the effect of the rising of the ring rail upon the number of inches of yarn which are actually wound on the bobbin.

In this article, the stroke of the rail is taken as 1¾ inches, and the formula is derived by assuming that the number of inches of yarn delivered by the front roll will exactly equal the number of inches wound *on the bobbin.*

It seems to me that the author of the article has overlooked the fact that as this yarn is being wound on the bobbin the ring rail is rising; and consequently, at the end of the upstroke, the rail is 1¾ inches nearer the front roll than at the beginning of the upstroke. Therefore, if the front roll *delivers* 72 inches of yarn, the actual length of yarn which passes through the traveler is 72 inches + 1¾ inches = 73¾ inches. Another way of looking at this feature is to assume the frame stationary at the bottom of the stroke. If we then raise the rail to the top of the stroke without moving the bobbin, traveler, or front roll, we shall have 1¾ inches of loose yarn between the front roll and the traveler. If 72 inches of yarn are then run through the front roll, the length of yarn wound on the bobbin will be 72 inches + 1¾ inches = 73¾ inches.

Since, however, the equation for finding the speed of the rail is based on 72 inches of yarn being wound *on the bobbin*, and we assume that this was obtained by drawing off and measuring the yarn from the bobbin, the length of yarn delivered by the front roll will be 72 — 1¾ inches = 70¼ inches.

Therefore, it would seem to me that the equations for finding the rail speed should be as follows:

$$\text{Upstroke} = \frac{1.75'' \times 196 \times 1'' \times 3.14}{70.25} = 15.33'' \text{ per min. on upstroke.}$$

$$\text{Downstroke} = \frac{1.75 \times 196 \times 1'' \times 3.14}{19.75} = 54.5'' \text{ per min. on downstroke.}$$

The difference between 54.5 inches per min. and 60 inches per min. on the downstroke would be important if the speed of the rail were the important figure to be obtained. However, if this is used only in finding the actual twist put in by the traveler, the difference in the result is too small to be of any consequence.

For instance, just before the rail reaches the bottom of the traverse:

$$3600 - \frac{(196 \times 3.14) - 60''}{1.5 \times 3.14} = 3482 \text{ r.p.m. of traveler.}$$

$$3600 - \frac{(196 \times 3.14) - 54.5''}{1.5 \times 3.14} = 3479 \text{ r.p.m. of traveler.}$$

And just before reaching the top of the traverse:

$$3600 - \frac{(196 \times 3.14) + 15''}{.5 \times 3.14} = 3198 \text{ r.p.m. of traveler.}$$

$$3600 - \frac{(196 \times 3.14) + 15.33''}{.5 \times 3.14} = 3194 \text{ r.p.m. of traveler.}$$

$$\text{Theoretical twist} = \frac{3600}{196 \times 3.14} = 5.85 \text{ turns per inch.}$$

Actual twist just before reaching the top of the traverse:

$$\frac{3198}{196 \times 3.14} = 5.18 \text{ turns per inch using 15 inches per minute as speed of rail.}$$

$$\frac{3194}{196 \times 3.14} = 5.19 \text{ turns per inch using 15.33 inches per minute as speed of rail.}$$

Theoretical twist is

$$\frac{(5.85 - 5.18) \times 100}{5.18} = 12.9\% \text{ more than actual.}$$

$$\frac{(5.85 - 5.19) \times 100}{5.19} = 12.7\% \text{ more than actual.}$$

An extreme variation of nearly 13 per cent in actual twist would seem to be very important, but there is another very important point to be considered in this connection.

After being spun on the bobbin, the yarn is then taken to the spoolers or winders where it is wound *overend* from the bobbins. In winding this yarn overend from the bobbins a certain amount of twist is *added* to the yarn, due to the drawing of the yarn over the end of the bobbin, the bobbin remaining stationary. In other words, there is one turn of twist *added* to the yarn for every revolution of the yarn in coming from the bobbin.

It is interesting to figure out what will be the actual twist in the yarn after winding or spooling from a bobbin such as is used in the example given in Mr. Bissonnette's article.

First, let us figure the actual twist per inch on the bobbin at the center of the stroke on the upstroke and the downstroke:

$$3600 - \frac{(196 \times 3.14) + 15}{.75 \times 3.14} = 3331 \text{ r.p.m. of traveler.}$$

$$\frac{3331}{196 \times 3.14} = 5.42 \text{ turns per inch on upstroke.}$$

$$3600 - \frac{(196 \times 3.14) - 60}{.75 \times 3.14} = 3364 \text{ r.p.m. of traveler.}$$

$$\frac{3364}{196 \times 3.14} = 5.47 \text{ turns per inch on downstroke.}$$

It was assumed that 72 inches is wound on the upstroke and 18 inches on the downstroke.

$$\frac{72''}{.75 \times 3.14} = 30.6 \text{ wraps of yarn on the bobbin on the upstroke.}$$

$$\frac{18''}{.75 \times 3.14} = 7.64 \text{ wraps of yarn on bobbin on the downstroke.}$$

Now, if we take a bobbin of this yarn and draw off the yarn which was wound in a cycle of one upstroke and one downstroke, we will obtain 72 inches + 18 inches = 90 inches of yarn, and in drawing this yarn over the end of the bobbin we shall add 30.6 + 7.64 = 38.24 turns of twist to this 90 inches of yarn.

The turns of twist put in by the traveler in one upstroke was 5.42 × 72 = 390 turns in 72 inches. On the downstroke, the twist put in by the traveler = 5.47 × 18 inches = 98.5 turns. Then 390 + 98.5 = 488.5 turns put into the 90 inches of yarn by the traveler. Then 488.5 + 38.24 = 526.74 turns of twist in the 90 inches of yarn after drawing over the end of the bobbin.

The theoretical twist was 5.85 × 90 inches = 526 turns, so it figures out that in winding any ring spun yarn over the end of the bobbin, the bobbin remaining stationary, the actual resulting twist will be exactly the same as the theoretical twist, excepting for such variations as slip of bands, contraction due to twist, etc.

An easier way to understand this effect of equalizing the twist by winding overend from the bobbin is to figure it out using a warp wound bobbin. Let us take a bobbin of ½ inch diameter.

For 100 inches of yarn delivered by the front roll, there will be $\frac{100}{.5 \times 3.14} = 63.7$ wraps of yarn on the bare bobbin. Therefore in winding this yarn on the bobbin the traveler has made 63.7 less revolutions than the spindle and that many turns of twist have been lost. Now if we wind this 100 inches of yarn *overend* from the bobbin, the 63.7 turns will be added to the yarn in winding, so that the total resulting twist will be exactly the same as the theoretical twist. The same result will be obtained on a full bobbin because the number of turns lost will always equal the number regained in winding overend.

If the warp wound bobbin is placed in a shuttle and spooled by *unrolling* the bobbin, this twist which was lost will not be added to the yarn, and the actual resulting twist will be less than the theoretical twist by the amount lost in the traveler action.

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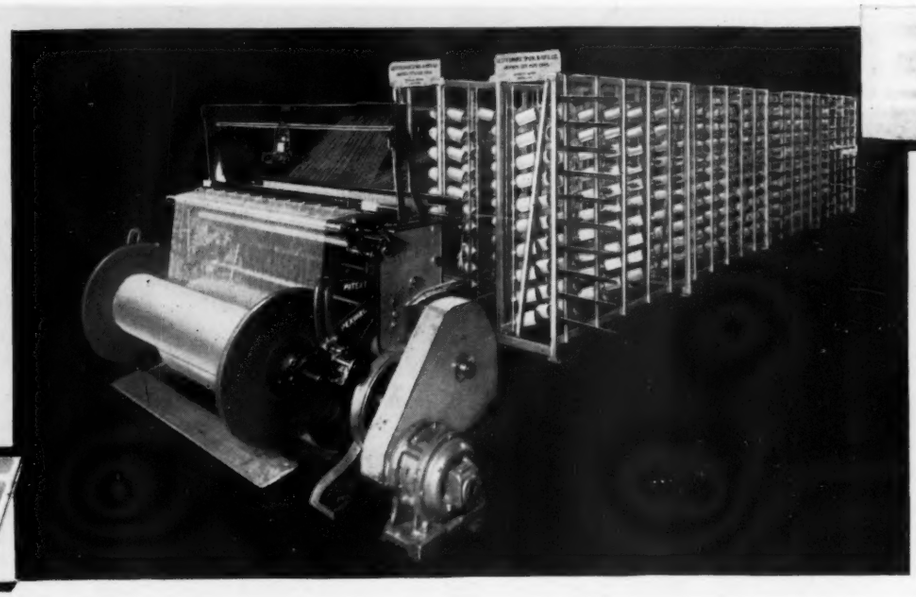

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Lestershire Method of High Speed Warping

Feature for feature, the Lestershire Method is unique. Coupled with the high rate of speed are continuous warping, a better quality of cloth, elimination of waste, and added convenience and efficiency for the operator. The facts back up these statements . . .

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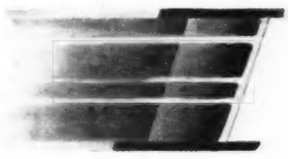

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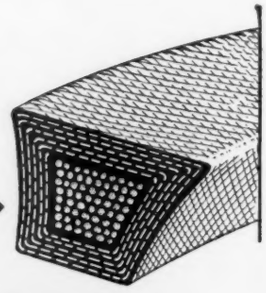


Just pick up a V-belt that is built with the ordinary *straight sides* and bend it as it bends when it goes around a pulley. Here is what you will see:

As the belt bends, its top *narrows,* its bottom *widens,* and the sides of the belt *bulge out.* (See figure 1.) This shape does not fit the sheave groove—and there are two disadvantages:

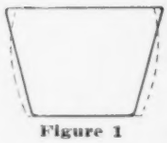


Figure 1

(a) The bulging produces uneven wear along the sides of the belt and (b) the full side of the belt is not uniformly gripping the pulley—a definite loss in transmission efficiency.

Now bend, in the same manner, a Gates Vulco Rope—the belt with the *concave* side (patent pending.) As this belt bends, you will see it assume the shape shown by dotted lines in figure 2. This shape exactly fits the sheave groove—with these two important results:

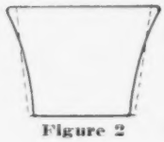
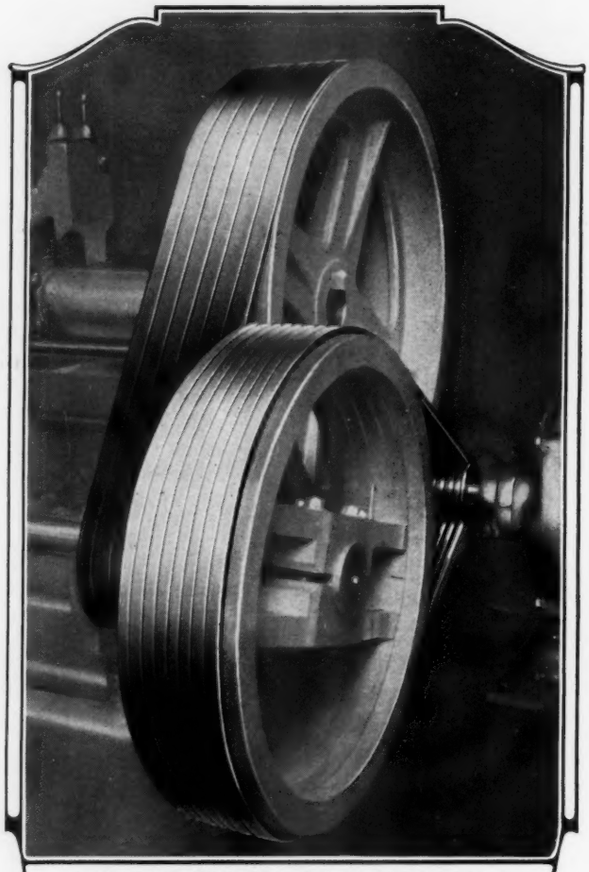


Figure 2

(a) The wear is evenly distributed and this means longer life and (b) the entire side of the belt uniformly grips the pulley and this means full delivery of power.



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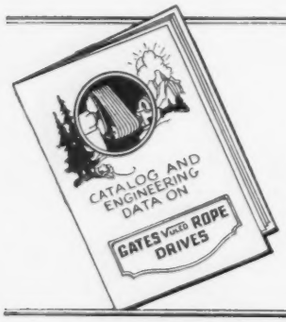

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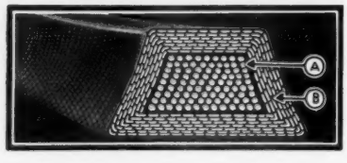


Patented Construction—A core of strong endless cords (to give the belt strength) with a bias cut cover (to protect the core and stand long wear) are both Gates Patents.

GATES VULCO ROPE

MULTIPLE V-BELT DRIVES

Manufactured by Gates Rubber Company, Denver, Colorado—The World's Largest Manufacturer of V-Belts

This equalizing feature of winding overend from a bobbin is one of the best features of filling wound spinning, because such bobbins are always wound overend. Warp wound bobbins are generally wound from rotating bobbins, with the result that the twist remains as put in by the traveler. Should the warp wound bobbins be spooled overend, however, the twist will be equalized exactly the same as from a filling wound bobbin.

There have been a number of instances where yarn spun on a warp wound bobbin has tested higher from the spinning bobbin than from the spools. The explanation is that when tested from the bobbin the yarn is wound overend from the bobbin to the testing reel; whereas, in testing from the spool, the yarn was wound from the bobbin to the spool by rotating the bobbin.

The following calculations for determining the twist disturbance in winding overend from a spool or bobbin may be of interest in this connection.

T = theoretical turns per inch.
C = circumference of full bobbin.
c = circumference of bare bobbin.

In delivering one inch of yarn from the front roll, the spindle will make T turns, but the amount of actual twist put into the yarn will be less than T, due to the drag of the traveler in winding the yarn on the bobbin.

$\frac{1}{C}$ = turns of the spindle, or bobbin, required to wind the one inch of yarn on full bobbin.

$\frac{1}{c}$ = turns required to wind one inch of yarn on bare bobbin.

Then $T - \frac{1}{C}$ = actual twist in yarn *on full bobbin.*

and $T - \frac{1}{c}$ = actual twist in yarn *on bare bobbin.*

If this yarn is wound over the head of the bobbin, one turn of twist will be added for every revolution of the yarn in coming from the bobbin.

$\frac{1}{C}$ = turns of twist added per inch in winding from full bobbin.

$\frac{1}{c}$ = turns of twist added per inch in winding from bare bobbin.

Therefore,

$$\left(T - \frac{1}{C} \right) + \frac{1}{C} = T = \text{actual twist}$$

in yarn after winding over the end from full bobbin, and

$$\left(T - \frac{1}{c} \right) + \frac{1}{c} = T = \text{actual twist in yarn}$$

from bare bobbin.

Therefore, since T equals the theoretical twist, the actual twist will equal the theoretical twist, and it follows that in winding ring spun yarn overend from the bobbin, the amount of twist *added* to the yarn will be equal to the amount lost by the traveler in winding the yarn on the bobbin.

The foregoing equations do not allow for any slippage of bands, contraction due to twist, etc.

Causes of Hard Ends on Intermediates.

Here are the first of quite a number of answers received to a question on this interesting subject. More to come. What is your experience?

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR NO. 4726," who is having trouble with hard ends on intermediates. He is running 15/16-inch cotton and setting his steel rollers 1 1/16 inches apart to make a 1.16-hank intermediate roving from .50-hank slubber roving.

If our experience in connection with matters of this kind will be of assistance, I shall be glad to outline some suggestions for him.

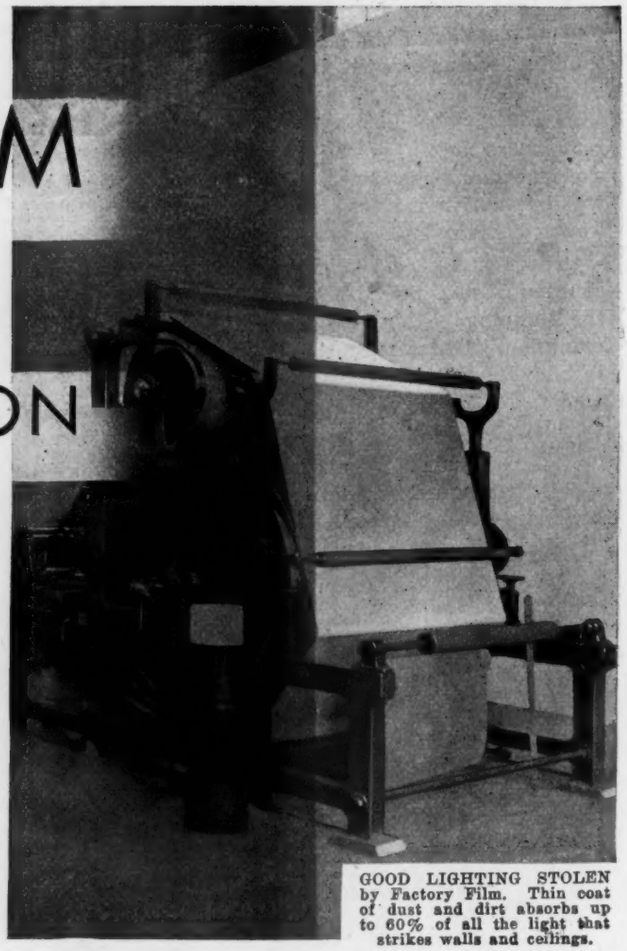
The thing that I think is causing the hard ends is the setting of the steel rolls on the intermediates. I would recommend that he set the front steel roller 1¼-inch from the middle steel roller, and the middle steel roller 1½-inch from the back steel roller when running a 15/16-inch cotton. When a bale of cotton is stapled and marked 15/16-inch, it means that the majority of the fibers in that bale are 15/16-inch in length. There will be a certain proportion that will be over 15/16-inch and a certain proportion that will be under 15/16-inch. It is the fibers that are over 15/16-inch that, in my opinion, are causing the hard ends. During dry weather each cotton fiber has a tendency to stand apart from the other fibers. During wet weather the fibers will cling closer together, which will throw more work on the top leather rolls and increase the tendency to make hard ends, as the longer staple will hold back. The amount of trouble that the long fibers will cause depends on whether the percentage of long fibers in any particular lot of cotton is high or low.

In making a 1.16-hank roving from .50-hank slubber roving, there is a large amount of stock passing through the rollers at one time, and if the weights on the top rollers are not heavy enough, the stock will have a tendency to slip through the rollers and make hard ends. It may be that the weights have become mixed and are causing the trouble. With an open setting of the steel rollers it will eliminate the possibility of the long fibers being held by the middle and front rollers at the same time.

If the top rollers are not kept clean and oiled they will have a tendency to drag. This will cause hard ends. The top rolls must be kept in good repair at all times. If they become grooved they will allow the roving to slip through without being drafted. I would check all traverse motions to be sure that they are in good working order and that the traverse is as long as it should be. This will help to keep the rollers from becoming grooved.

When the roving begins to run bad and break back in the creels, more twist is put into the roving in the process preceding it. Many times this twist will be left in the roving for months after its need has past.

DON'T LET FACTORY FILM DRAG DOWN YOUR PRODUCTION



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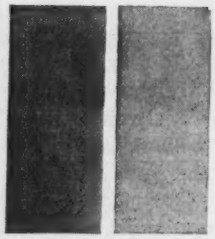
You know, of course, that this is not a new problem. But more attention has been paid recently to its solution than ever before. And in addition to naming this enemy of mill production, science has produced a means of reducing it.



Unretouched photographs —On the left is a wall on which Factory Film has begun to form—On the right is one protected by Du-Lite, the pre-tested mill white.

Du-Lite—the answer

DuPont chemists were among those who sought a remedy for Factory Film. They formulated Du-Lite, a mill white that stays white . . . that resists the formation of Factory Film. They spent months and thousands of dollars to test beyond doubt and prove scientifically the qualities of this paint before it was ever offered for factory use. They obtained a smooth, tile-like, closely knit paint surface from which dirt and dust slide almost as easily as water off a duck's back.

And when you add to this the fact that Du-Lite retains its natural whiteness, you have two qualities that best meet your needs for an interior white. Here is a mill white that does not quickly lose its ability to reflect light. But here is a paint film that lasts . . . that helps your employes' eyes . . . that makes for speedier production at lower cost . . . that decreases spoilage of materials.

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Du-Lite comes in Flat, Egg-shell or Gloss Finish. There's a specially prepared flat drying undercoater, too. It can be applied with spray or brush. Under the brush it flows with a smooth, even finish—never a pull. You can use it on wood, brick, plaster, concrete and metal surfaces. Du-Lite can be tinted easily to any shade you may desire. If after a time it should become soiled, washing will quickly restore its original whiteness.

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DUPONT
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O-549

DU-LITE

The Pre-Tested Mill White

This will not only cut production on the frames but puts unnecessary work on the rolls of the frame that follows it. It is a good practice to check the twist in all the processes at regular intervals to be sure that all the twist being put in the roving is needed. We often find that we are putting in more twist than is needed.

I hope that the foregoing suggestions will be of some help to "CONTRIBUTOR No. 4726" in overcoming his trouble with hard ends.

CONTRIBUTOR No. 4757.

EDITOR COTTON:

A most interesting question, with reference to hard ends on intermediates, was asked by "CONTRIBUTOR No. 4726" and published in a recent issue of COTTON. This is especially so, when you take into consideration that from the data furnished by this man, he is just about as close to being on ideal conditions as can be had for good running work. He uses 15/16-inch cotton, and sets his rolls at 1 1/16-inch; he makes 1.16-hank roving from .50-hank slubber roving, with a draft of 4.76; he says he has no hard ends whatever in his slubber roving; he has 16 and 18 pound weights on his front and back rollers respectively; he has standard twist of .847 turns; and he is reasonably certain that the oiling is right.

And yet, he complains that he has trouble with hard ends on his intermediates, particularly so in damp weather.

Under the conditions as he has stated them, there are according to my experience only a few other things that could cause hard ends:

Hard or wiry cotton, too much humidity, grooved or channeled top rolls, roving traverse too short, or cushionless top rolls.

Several years ago I had some experience with hard or wiry cotton which was exceedingly difficult to draft. This cotton was blue tinge, and very tough. Ordinary twist in our slubber roving made roving that caused considerable trouble on our intermediates, and it was only by using less than standard twist that we were able to get by.

Too much humidity will cause cotton hard to draw and will surely produce a good crop of hard ends. One very important condition, necessary for good running work, is having the proper relative humidity or regain in the room, and the only way to get this is to have an adequate equipment of humidification, together with automatic control.

With the roving traverse too short, and the top rolls with not sufficient cushion, the rolls become grooved or channeled and forever afterward, until replaced with new ones, will cause hard ends.

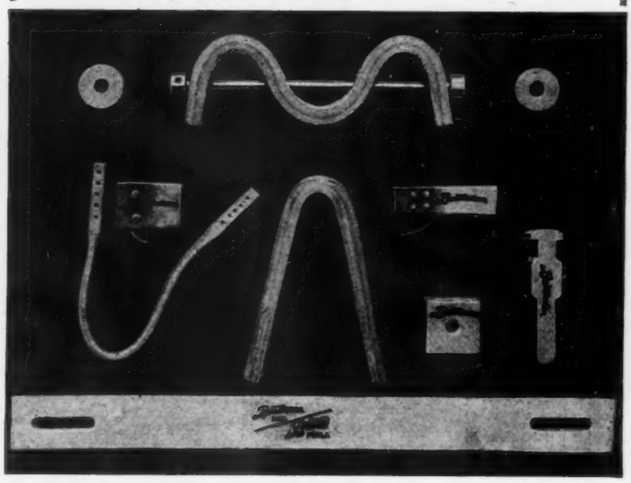
But from the data given, together with the fact that this man says his trouble is increased during wet weather, I believe that "CONTRIBUTOR No. 4726" has a bad case of excessive humidity around his frames.

CONTRIBUTOR No. 4752.

EDITOR COTTON:

This replies to the question of "CONTRIBUTOR No. 4726," who said that he is having difficulty with hard ends on his intermediates. He said he uses 15/16-inch cotton and makes 1.16-hank intermediate roving out of

"The Most Economical Check Strap on the Market Today!"



The advantages secured from using the best textile leathers are both manifold and manifest.

Besides replacements, the inaction caused by lost loom time in putting them on, the loss of production, the loom fixer's time and the possible defects in finished materials, all added together over a period of time run into actual and large financial losses.

It is these savings of replacements and lost time thru the use of Bondaron REG. U.S. PAT. OFF. Textile Leathers that brings such unsolicited testimony from a South Carolina mill, as follows:

"I equipped 12 looms with Bondaron REG. U.S. PAT. OFF. Check Straps four and a half years ago. They are all running today except three. I equipped 432 looms with these straps two years ago and with the exception of seven they are still running and I think they are good for at least another year. I consider Bondaron REG. U.S. PAT. OFF. Check Straps the most economical on the market today."

Bondaron REG. U.S. PAT. OFF. Textile Leathers will last from three to four and more times longer than any other textile leathers on the market. A strong statement, of course, but one we will gladly prove in a trial shipment carrying the above guarantee.

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.50-hank slubber roving; that the weight on his front rolls is 16 pounds and that it is 18 pounds on his back rolls. He said that he sets his rolls to 1 1/16-inch.

This man reported that while he has no hard ends on his slubbers, he does experience this difficulty on his intermediates, particularly in wet weather.

In going over his lay-out which I have given above, I do not find any suggestion I can make other than that his roll setting on the intermediates seems to be rather close. I would suggest that he try opening his rolls at least another 1/16-inch, provided that he is now taking this measurement from bite to bite. If he is taking his measurement from center to center, he could easily go ⅛-inch.

The 16-pound weight he is using on his front roll will ordinarily be sufficient, but I have had the experience of adding four more pounds to the weight, finding that it gave better results. This, however, was with a 1⅛-inch roll instead of a 1 3/16-inch roll as I presume he is using. I really believe that he can get away from his trouble and make better work by opening up his rolls.

M. T. (S. C.)

Methods of Inspecting and Grading Ginghams.

A number of experience answers to some questions on this subject which appeared recently. Do you agree with all of them?

EDITOR COTTON:

In a recent issue of COTTON "CONTRIBUTOR NO. 4715" asked several questions with reference to the inspection and grading of ginghams and colored goods. He said that he inspects his ginghams by pulling the cloth over a small table, and the first thing he wanted to know was whether the cloth should be inspected and graded before or after passing through the tenter machine.

In reply to this, I will say that all colored goods and ginghams should be inspected at once in the loom roll to discover any weaving inmperfections. This is usually done over inspection tables. The inspection is usually very close. On the cheaper grades of ginghams, this is the only inspection which is given to the goods. This grade is then finished and either run on the folder and put up into yard folds, or else run on a winder and put up on boards. During the folding and winding, the final inspection is given. The folders and winders are run slowly, so as to give the operator a chance to inspect. The speed is about 60 yards a minute.

This man next asks whether folders should be used before the cloth is inspected to prepare the cloth for this work. On better grades of ginghams, the goods are inspected in the loom roll for weaving imperfections, then finished. From the tentering machine they then go to the folders where they are put up in yard folds in individual cuts. These are then hand-inspected on tables and graded carefully.

He then wanted to know whether these cloths are finished as they are made up or as they are shipped out; in other words, are the goods stored in the packing room in the finished state or unfinished state? All colored goods are finished, inspected and graded, and stored in this condition. All goods which are to be kept for any length of time are folded in yard folds. If later they are to be shipped on boards, the goods can be handled from the fold on the winder as readily as any roll. If they are to be shipped in yard folds they are, of course, all ready for shipment. No cloth is kept in the unfinished state.

His last question asks for a system of grading to use for ginghams and other colored goods. All major imperfections are cut out during the first inspection on the loom roll, or the imperfections are marked to be cut out on the folder after being finished. Small imperfections that do not necessitate cutting the goods are marked and allowance made for them. Usually about nine inches for each imperfection.

CONTRIBUTOR NO. 4716.

EDITOR COTTON:

I am replying to the questions asked by "CONTRIBUTOR NO. 4715" with reference to the inspecting and grading of ginghams, etc., whose letter appeared in a recent number. He asked whether the cloth is inspected before or after it passes through the tenter machine, and I will say that we inspect and grade cloth both before and after. We do not use folders before the cloth is inspected to prepare the cloth for this work.

This man wanted to know further whether it is good practice to finish the cloth as it is made, or to store it in the packing room in the unfinished state. In reply to this I will say that in most cases it is customary to finish the goods as they are made.

His last question asks for a system of grading on ginghams and other colored work.

There are about as many systems of grading ginghams as there are grades of ginghams and mills making ginghams. Every mill has an idea that its method is the best, and all may be right.

Pulling cloth over a table by hand never did appeal to me, probably because I do not believe in doing anything by hand that can be done by machinery. And because of all the monotonous jobs in a cotton mill, that is the worst. I do believe in the table, but I believe the cloth ought to be run over the table very slowly by machinery, and under the control of the inspector, so that it can be stopped and an examination of the imperfection made, thread sewn in, slug pulled out, or other repairs made. This should be done with the cloth as it comes from the looms in either single or double rolls. The firsts or perfect cloth in one pile and the seconds put in another and kept separate.

It may be that after the cloth is finished there will be some of the seconds that can be put into firsts. All the finished seconds should be gone over carefully with this in view. Of course, after the cloth is pulled over or run over the inspection table and the seconds shown to the weaver, it is then wound in a roll and gotten ready for the tenter.

Another system that is much used is as follows:

1. Take cloth from the loom and wind it into a

roll of convenient size, sewing the cuts together.

2. Put on the inspector and sew a thread in the selvage at every bad place in the cloth, making notes of misdraws, etc., that should be corrected so that it can be attended to at once instead of waiting for the cloth to come through the finisher and get to the folder where it is laid out and shown to the weaver.

3. Run through the tenter and calender.

4. Run through folder and lay out for a second inspection every piece with a thread in the selvage.

5. Inspect again and show to the weaver, reclaiming and putting into firsts all possible.

Each system has its advantages and its disadvantages. The first system is the more satisfactory if the percentage of seconds is low.

The manufacture of ginghams has been a source of much thought to me for the last several months. I made gingham for 15 years, out of raw stock dyed cotton and out of chain dyed warp and filling, long chain and short chain systems, but was never able to make a piece that was perfect. Since the days of labor extension systems, I am wondering if there would be as much trouble in the inspection department as there is if the same care was given to the separation of the warp and filling in gingham as there has to be in the manufacture of goods where the weaver must run 40 to 80 looms, as in print cloth and sheeting.

The best informed manufacturer that I have seen in many years told me that he was starting up his mill on moleskins—that isn't exactly an easy weave to get just right—and all that he was going to ask of a weaver was that he do the things he told him to do and do them when he told him to do them and he would take all the responsibility for the cloth, both as to quantity and quality. That manufacturer didn't expect a lot of gouts, weak threads, drawbacks, kinks, long knots, etc., to come up and make a mess of his work; he was expecting all of that to be attended to before the weaver got it. He didn't expect a lot of high piecing and cut quills and lapped ends in the filling to be making thin places and pick-outs.

If this kind of preparation was made in the manufacture of colored goods, such as gingham, there would be the prettiest running weave room you ever saw, and the inspecting department would have very little to do, so little in fact that the system of doing it wouldn't be so important.

CONTRIBUTOR NO. 4717.

EDITOR COTTON:

In the May number you published some questions from "CONTRIBUTOR NO. 4715" with reference to inspecting and grading ginghams and colored goods. I have had quite a long experience along the line of the goods in question in various southern mills.

With regard to ginghams, my experience is that this cloth is taken off of the loom on rolls in either single or double cuts, the latter being preferable, and carried to the cloth room and checked in, in order to give credit to the proper weaver.

After checking it in from the weave room, it should be weighed to find out if the weights are heavy or light, according to the standard. From here it should be put over an inspecting machine and inspected by a

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After passing over the inspection table, the cloth is plaited down behind the machine, and as each piece is inspected it is carried to the folder and folded, and the style and yardage put on. After this operation, the cloth should be put in the racks, the first quality and spliced pieces put together, and after finishing putting a certain percentage of the spliced pieces in each case. The seconds should also be put up in racks and held for finishing instructions. Most mills hold all seconds until they have orders for 10/20 pieces and then finish their seconds and cut them up.

Your Contributor's first question was, "Do you inspect and grade the cloth before or after it passes through the tenter machines?" In answer, I will say that my experience has always been to have the cloth properly inspected from the loom and after wet finishing and tentering, have the operator of either the folder or the winding machine inspect the cloth as he runs it, for such trouble as torn selvages, badly starched or calendered places and so on.

This man next asked, "Do you use folders before the cloth is inspected to prepare the cloth for this work?" I would not suggest folding before inspecting, as this would mean one more operation and would run the cost too high, but I would handle it direct from the loom to the inspecting machine and then to the folder.

"Do you finish the cloth as it is made or as you ship it out? In other words, do you store the cloth in the packing room in the finished state or unfinished state?" was the next question. Numerous mills store their goods in the unfinished state. My experience along this line has been never to finish any goods until orders are received, because in these days and times, one can never tell how the customer may want his goods finished. For example, we might have all of our goods finished up fairly firm, and some of the customers might call for their goods with a soft mellow hand, which would mean reworking the goods, with the chances of tearing up a lot of cloth and also the cost of re-handling. My advice is to keep the goods in the unfinished state until specific instructions are received as to the finishing.

Before closing, I will say a few words with regard to colored goods. There are two classes of colored goods, one is a colored woven piece goods, the yarn being already dyed both in the warp and filling the other is a piece of dyed one, the colored woven goods I would handle in the same manner as the gingham. The piece dyed goods, assuming they were O. K. when they went to the dyehouse as far as manufacturing was concerned, I would inspect carefully on a table fold after fold, after dyeing and finishing, in order to find out if any trouble had developed in the foregoing two processes, and to have all the bad work returned into the proper department for correction.

Of course it depends largely as to whether the mill manufactures its cloth and finishes its own products, or if it is a commission dyeing and finishing plant, as these plants handle their production in a different manner sometimes.

CONTRIBUTOR NO. 4776.

Putting Starch on Loom Belts.

EDITOR COTTON:

Here is an answer to the question from "CONTRIBUTOR NO. 4768," who asked why it is that overseers allow loom fixers to sprinkle corn starch on loom driving belts, and, if there is any merit in this practice, why it is that direct motor-geared looms do not give this trouble.

I do not know why overseers allow fixers to put corn starch on belts, but I presume it is for the same reason that they allow them to take up belts, in order to help secure production and to fix the looms that the weavers have called on the loom fixers to fix.

In a weave room where there is apt to be excessive humidity at times, belts will take up a certain amount of moisture on the surface, and will then get a little gummy and start to run in jerks, causing the loom to bang off from an uneven pick thrown with a jerk. It also makes it awkward for the weaver as the loom will run over, a half or more picks. By putting on corn starch or any absorbent powder, it will take up the moisture, and to a certain extent will clean the surface of the belt and the belt will run smoothly as usual. Fuller's earth could no doubt be used with equal results where there is objection to the starch.

Any fixer who has tried to throw a damp belt on the pulley on the line shaft knows that it will pull him off the floor if he holds on, but if he rubs the belt with starch or other powder, he can hold it with one hand and easily kick the belt onto the loom pulley.

All motor-driven looms that I have had any experience with have cork for friction, and as cork does not have the affinity for moisture that leather has, I have never seen any reason for using corn starch or anything else, but I do remember on an old time loom, with a friction pulley on the drive covered with leather, on rainy days the looms near the windows used to get a corn starch or Fuller's earth treatment in order to get them to running smoothly.

CONTRIBUTOR NO. 4791.

EDITOR COTTON:

This is written in answer to the question of one of your contributors as to why overseers allow loom fixers to sprinkle corn starch on loom driving belts.

I will say that this has been a custom practiced in our mill as well as others, for many years, and we think that it is a very necessary one. As we all know, the weave room contains decidedly more humidity than any other room in the mill, and consequently the belts in this room are always more or less filled with moisture. This constant dampness, together with the lint, etc., that collects on the loom driving belt, causes the belt to become at times very gummy and sticky. This of course causes the belt to gum or stick to the loom pulley, which in turn makes the loom slant and jerk. This jerky motion is very likely to break a sword on account of the fact that

there is no slippage of the belt when the loom slants. This jerky motion is so pronounced at times that you can see the reed caps quivver.

If the belt could be kept perfectly clean, the starch would not have to be applied as often as when dirt and lint are allowed to collect on the belts. The condition of the leather in the belt, as well as the dampness in the room, will affect the pulling of the belt. A slack belt will stick very much more readily than a tight belt, consequently we always cut a belt when it is necessary to starch it, but we starch it first and let it run long enough to get the stickiness out of it before we cut it, because we could hardly handle it satisfactorily while it is gummy. The speed of the loom is increased several picks when it becomes sticky, and after the starch has been applied, it takes its normal speed. Instead of applying corn starch to the loom belts, they could be washed off with water and a rag, and the same result secured, but the belt would be injured after several washings.

Your contributor wanted to know why it is that direct motor-geared looms do not give this trouble. The reason is that their speed is constant, and there is nothing to cause the loom to jerk, as outlined in connection with a loom that is driven by a leather belt.

CONTRIBUTOR NO. 4807.

EDITOR COTTON:

Your "CONTRIBUTOR NO. 4768" recently asked a question as to why overseers allow loom fixers to use corn starch on loom belts. My experience has been that if loom belts are kept at the right tension and are kept clean, very little starch, if any, will be needed. Loom belts get dirty from lint collecting on them, and the humidity in a weave room, which is usually very high, will cause the belts to get sticky and result in the loom not running as it should, but with a jumpy motion.

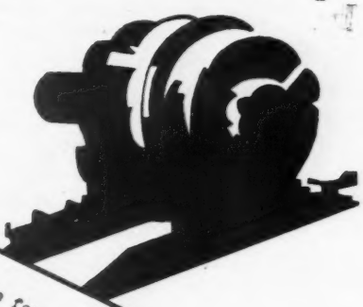
All loom belts have some slippage caused by the uneven run of the loom. When the loom belt gets dirty and sticky, there will not be the required amount of slippage, which will cause the loom to run with a jumpy motion. Applying starch to a belt in this condition will allow it to slip and the loom will have its proper motion, but in a reduced speed. Soon the starch applied will absorb enough humidity to cause the belt to get sticky again, and the same trouble will be experienced.

If belts are cleaned often, they will not give much trouble. Looms with overhead drives, having longer belts, will give more trouble than looms driven from underneath with a short belt, as the drive underneath is not affected by humidity as much as an overhead drive.

My advice is, when a belt is jerking a loom, to clean off the belt, and then, if the results desired are not secured, apply a little starch, but I would suggest having the starch in a cloth bag, and only sifting it on very lightly.

J. H. B. (S. C.)

Read this Letter!



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Causes of Roving Breaking Back.

EDITOR COTTON:

"CONTRIBUTOR NO. 4775" asks the following question: "Assuming that the spinning creels are level, and that the skewers and other points are in good shape, what are the main causes of roving breaking back in the creels on spinning frames?"

Let us enumerate some of the causes and remedies.

1. The setting of the creel rod over which the roving pulls has something to do with breaking back. The creel rod should be set a little over 1/3 of the roving bobbin traverse from the bottom of the roving. It would appear that we should set the creel rod in the middle of the roving bobbin, but this is not best as the amount of roving exposed to friction and the angle of friction is greater at the bottom pull of the bobbin than at the top. So the bottom of the roving bobbin is favored by placing the creel rod below the middle of the roving bobbin.

2. It is self-evident that insufficient twist will cause breaking back in the creel. However, roving of poor quality, full of thick and thin places, can be covered up by a high twist multiple, but this is detrimental to the spinning. On 4.40-and 5.60-hank roving for spinning, we are using a twist multiplier of 1.40 to 1.45, and we seldom or never have any breaking back on the spinning. We are spinning 32s and 42s, using long draft. The cotton is 1-inch to 1 1/32-inch staple.

3. One of the main causes for breaking back, even when using the proper twist multiple, is the use of a tension that is too tight on the fly frames. This will cause thick and thin places in the roving, with resultant break-backs. The ends on the fly frames should vibrate freely while running to assure proper tension.

4. If clearers are not picked regularly on the fly frames, it will cause lumps to go into the roving, and these will stop up the trumpets on the spinning frames, and as a result, the roving end will break back.

5. A dirty spinning frame will cause some break backs due to lint falling down from the frame and stopping up the trumpet. Also if the creels and skewers are not wiped regularly the accumulated cotton on the points of the skewers will cause extra friction on the roving, causing break backs. Also, a trumpet that is burred up will cause a gradual accumulation of lint that will stop up the trumpet and break back the end.

6. Rolls set too far apart on the fine frames will cause thick and thin places in the roving resulting in break backs. Along this line may be included bad rolls on the fly frames, of an eccentric character, that make thick and thin places in the roving. Worn roller necks will cause this to a great degree.

7. Cotton in the flyer leg of fine frames will cause stretched roving which may break back in the spinning frame. Also, rolls burred up on fine frames will tend to cut roving and cause it to break back.

8. Uniform cotton is essential to prevent break backs. Cotton of poor character, and mixed staple, cannot compete in good running work with uniform staple and good character. Cotton of sufficient staple for the work being run is also necessary. In this connection, the running of re-worked waste is a thing to be watched. If the re-worked waste is run in batches and not distributed, then we will get soft places in our roving which will cause breaking back. The re-worked waste should be distributed as widely as possible throughout the work in order to get good results.

9. Your contributor asked about the number of ends down on spinning, due to break backs, with the grade and staple of cotton given. We are running 1-inch to 1 1/32-inch Middling to Strict Middling cotton, making 32s warp yarn. Our ends down per thousand spindles per hour on several tests ran from 18 to 20. On these particular tests there were no ends down from break backs, showing that this is negligible in our mill. I would say that the ends down from break backs in our mill are not one to two per cent of the causes for ends down.

CONTRIBUTOR NO. 4788.

EDITOR COTTON:

What causes roving to break back in spinning frame creels?—was asked in your magazine recently.

The two most common causes are that the creels are not level and that the skewers are worn out, but in asking the question your contributor assumed that these two probable causes had been remedied. Assuming this then, we find that the next most prevalent trouble as to roving breaking back in the spinning creels is from the lack of twist in roving. The roving should have enough twist to pull the full package without stretching. A roving with sufficient twist to overcome this common fault can be made as follows: for 2.00-hank single roving made from 7/8-inch Strict Low Middling cotton, use a 1.30 twist multiple.

If the speeder has a 1 1/8-inch front roll and a 1-inch middle roll, they should be placed as close together as possible. The stock should be drafted from 5 to 6. The tension should be adjusted so as not to be too tight, and the lay adjusted so that the roving is laid side by side and not lapped or with too large a space between the layers.

Careless cleaning-off in the card room will throw trash and short-fibered lint into the roving and these will cause slubs. Since these slubs will not twist, they will pull apart in coming off the bobbin.

Bad gears on the speeders will cause cut places in the roving; these being thin places, it is natural for all of the twist to run to them and not to allow enough for the regular sized portions of roving on each end of the bad place. When such a condition is evident, the roving usually breaks back in the creels.

The slots at the bottom of the speeder bobbins may be worn badly or broken. Thus the bobbin will not turn smoothly on the speeder and will tend to slip back and stretch the roving.

An unbalanced pulley on the spinning frame will vibrate the creel; this sometimes causing the roving to break back.

Careless speeder hands, while creeling, may allow an inch or more of singlings to pass through into the roving, thus it will break back in the spinning frame creel.

The roving rods on the spinning frame may not be adjusted properly. They could be placed too high or too low for the roving to pull off easily as it gets down

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[See next page]

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near the bobbin. It is at this point on the bobbin that the roving rod should be adjusted so that the roving will pull off with the least resistance.

CONTRIBUTOR NO. 4797.

Figuring Draft.

EDITOR COTTON:

On page 622 of the April, 1930, issue, in a report of a practical discussion convention in Montgomery, a Mr. Ryckman makes a statement concerning break draft on a fly frame. He says, "With a break draft of 1.10 and a total draft of 7, the other draft would be 5.90. Also, with a total draft of 4.00 and a break draft of 1.10, the other draft would be 2.90." This statement was made before a group of practical mill men and was not challenged. However, it seems to me that the figures used are incorrect, and I believe it is a well known fact that in order to get the total draft it is necessary to multiply the separate drafts, rather than add them, and necessary to divide the draft in order to get the separate draft.

Therefore, if Mr. Ryckman has a total draft of 7.00 and a break draft of 1.10, the other draft will be 6.37 and not 5.90, as he stated. Using his figures, the total draft would be $5.90 \times 1.10 = 6.49$, instead of 7.00. Using the right figures, $6.37 \times 1.10 = 7.007$. He is also wrong in the other case, as 1.10 break draft and 4.00 as a total draft gives the other draft as 3.63 instead of 2.90.

By dividing 7.00, which is the total draft, by 1.10, which is the break draft, 6.37, the answer, will be the other draft.

It is always necessary to remember not to add or subtract drafts. It just cannot be done.

CONTRIBUTOR NO. 4766.

A Criticism of "Wash", in Defense of "Hank."

In which a man in Rhode Island defends some statements of the man from North Carolina, against attacks by "Wash."

EDITOR COTTON:

I would like to send in a few remarks and a little criticism regarding the article by "WASH R. I.," which was published in the May issue, in which he criticised some remarks made by HANK G. SPINDLE in an article which appeared on page 297 of the January issue.

In the third paragraph of his article, "WASH" makes the following statement: "It seems to me that 'HANK' should know that the trumpet of any machine will not spoil the work." How does "WASH" get that way? Is he trying to tell "HANK" and other interested readers that a worn trumpet will not interfere with the proper condition of the drawn sliver?

Now, I am not going to ask "WASH" to believe that a worn hole in the trumpet will give a lumpy sliver, so that will save him the trouble of "pulling me up" on that point. However, I will ask him to believe that a worn trumpet on the drawings will cause a variation in the sizing. We have definitely proven this. A short time ago on one of our drawing frames one end always sized lighter than the remaining three ends of the four deliveries, and upon investigation, after we had made sure that this one particular end sized light time after time, we found a worn trumpet which was causing the trouble. As soon as this worn trumpet was replaced with a new one, we were no longer troubled with this light sizing of this one particular end.

Hence, I think this test will bear out the fact, contrary to the statement of "WASH," that worn trumpets will spoil the work. How about it, "WASH"? Have you ever discovered this truth? This is not based upon theory, but upon actual discovery. So it is my humble opinion that HANK knows quite a bit about worn trumpets causing bad work. Although they may not cause thick and thin places, I think it is very evident that variation in weight will be caused by them.

In the fourth paragraph our friend "WASH" quotes "HANK" as saying that back-lash in the gearing on drawing and slubbers would cause thick and thin places. "WASH" admitted that "HANK" was correct here, but he went ahead to point out that "HANK" did not give any reason for this back-lash. I believe that the reason he didn't is because he realized that all practical men knew the cause of back-lash. Anyway, "HANK" would never have thought of the causes, as listed by "WASH," for back-lash, as I am sure that "HANK" knows better.

In criticizing "HANK'S" failure to describe the cause of the back-lash which is supposed to cause thick and thin places in drawing sliver and afterwards in slubber roving, I think that "WASH" himself failed in his description of the cause. And, mind you, this cause of back-lash, according to "WASH," was the reason he wrote the article in the May issue. He said, "back-lash on drawing is caused by one belt riding the other; by the driving belt being too slack; or by the driving belt being made up of part single and part double belting." You will note that not one word did he say about gearing. Providing the belts are okeh, no back-lash in gearing occurs, according to "WASH." All that I can say is that it is a good thing that we don't all fall for that line.

I would certainly like for "WASH" to tell me how a driving belt can cause back-lash on drawing frames which are run by chain drive. These frames give trouble that is caused by back-lash. Then, too, how many mill men will have a driving belt made up of single and double belting?

I contend that back-lash will always be detected in the gearing, and a recent actual experience proved this when we were getting thick and thin places on our slubbers, at least on one of them, because we happened to be using a certain slubber to run a certain grade of cotton. On noticing the faulty roving, I first went to the finisher drawing, and finding it okeh, went on to breaker drawing to see if any signs of back-lash could be noted here. I discovered this defect in the double calender, or tension gear, and the calender roll gearing, one of which was badly worn, through being improperly meshed, and this was the cause of the "chatter" which our friend "WASH" told us about.

Later in his article, "WASH" says that a dry roll will not cause thick and thin places. Can it be that

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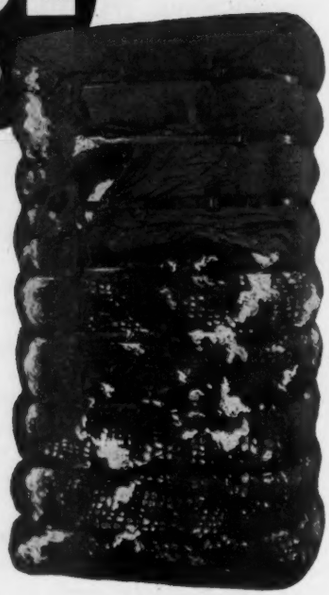
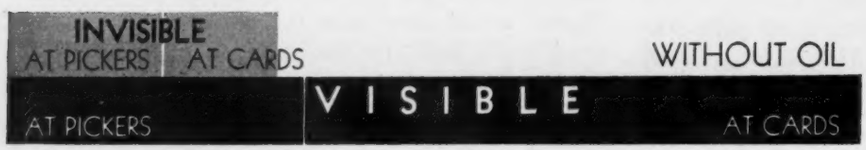
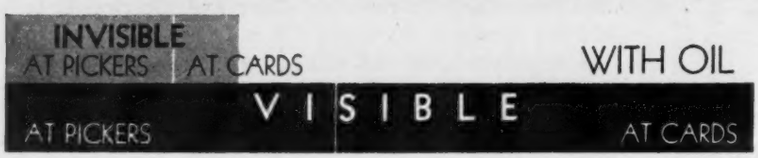


FACTS ABOUT WASTE...

From Dyed Raw Stocks

(As determined in a representative cotton mill)





This mill manufactures from 7/8" Staple local cotton, Middling grade yarns which they subsequently weave into piece goods finished to their own account and sold under their own mark.

These figures were obtained by carrying out a special test to determine the exact advantages to them in the "Breton Minerol Process". The possibilities of other mills duplicating these results depend upon the type of cotton used, and the conditions existing in each individual mill.

In other mills where records have been carefully kept and tabulated, the above facts are checked.

At the same time, working conditions under which the operatives work are materially improved . . by the positive elimination of fly and lint.

•

(Breton Minerol E is also applied to the white cotton processed in this Mill)

•

BORNE SCRYMSER COMPANY

17 BATTERY PLACE, NEW YORK

he really believes this? Maybe he has never had the experience of having a dry roll on drawings, and too, it may be that it has never occurred to him that a front loose boss roll arbor can be dry on one position and have a little lubrication on the rest of its surface. Does not such a condition of arbors produce a hindrance to the smooth running of rolls? I mean to infer that a roll under such a condition is slightly retarded on the dry position of the arbor. What is the result? I believe we all know the answer, so there is no need of my giving an explanation.

The condition of rolls described may exist in several rolls of the set. I have seen this happen after a new set of rolls have been put in the frame; also, when the shells have not been cleaned out before putting on the arbors, because when these rolls come from the roll coverer there is always a slight amount of rust inside the shells. This should always be cleaned out before putting the rolls in the frame because the lubricating value of whatever oil is used on the arbors is bound to be destroyed by the rusty condition of the inside of the shell rolls.

"WASH" made another statement that I thoroughly disagree with when he stated that ball bearing rolls will not help, and that solid rolls are equally as good as ball-bearing rolls. I thought our friend was supposed to be chock full of progressive ideas, and here we have him ridiculing new ideas, all because he can not agree with another man.

My previous statement regarding the trouble I found in the calender roll and tension gearing of the breaker drawing also puts in the shade what "WASH" had to say about the impossibility of the trouble occurring in the breaker drawing, as well as the statements he makes later on in his article when he assures us that whatever bad work in the way of unevenness occurs on the cards and breaker drawing will surely be rectified by the amount of doublings and draft amassed by the time the work is through the finisher drawings.

We men of the carding section are now at liberty to neglect all the rules we have been trying to enforce on the cards about periodical stripping, careful piecing of sliver and laps, and all the other numerous worries we have been used to in the struggle to attain a good card sliver for the drawings! Neither is it necessary for us to be careful about getting very even laps, as we can always depend upon the good old finisher drawing! Again, let us ask "WASH" how he gets that way? I am sure that all of us would like to know all about this new method of abolishing thick and thin places in roving.

A draft of 24 inches, or 124 inches, will not altogether eliminate thick and thin places, and I hope that "WASH," for his own benefit, will realize this point. I know from experience.

Now, I would like to make just one more criticism of "WASH'S" article. In the last paragraph of his article he stated that in practically every case of his experience with thick and thin places, it occurred on the finisher drawing. Here he failed to give the defects he found on the drawings. This seems to me to be rather inconsistent, for it does seem that he should be

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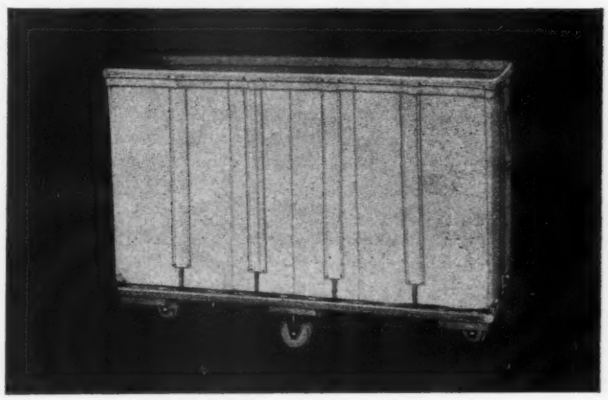

RAYON ADDS
9 MONTHS OF LIVELY SELLING TO COTTONS

COTTON and fine Du Pont Rayons have gone on record as good "mixers." Dress manufacturers who expect to cut several hundred thousand yards of the new 1930 rayon and cotton crepes claim that they open a brand-new market for volume fabrics. They further state that Du Pont Rayon, used with the present skill, will add an extra nine months of lively selling to cottons for winter dresses. No other fibre provides so perfectly the things that cottons need to capture the winter market.

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2—Rayon, being a perfectly even, continuous fibre, gives sheerness, body, and drape to cotton weaves without making them thick.

3—Rayon is an economical mixer. It gives suppleness to cotton without shooting the price above the volume market.

4—Rayon gives the rich glow that keeps dark cottons from looking dusty when they are worn with deep-pile fabrics.

5—Rayon combined with cotton makes fabrics that are easy to launder—that will not wrinkle easily.

6—Rayon stands out beautifully in the new jacquard effects.

EXAMINE PAR CREPE . . . Par Crepe, a featured fabric in Storyk's fall line, is a live example of the way cotton combined with Du Pont Rayon can be styled for fall.

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LOLUSTRA keeps its low lustre after it is laundered. That's one reason why knitters and weavers who can't afford to gamble on artificially de-lustred rayons buy Lolustra. The subdued glow that it gives to fabric is inherent in the yarn . . . not painted on.

able to explain why this frame does not remedy defects of its own, since its makes compensation for all other defects previously attained. I am afraid "WASH" would have to do quite a bit of explaining to convince me of the truth of some of his statements concerning back-lash and thick and thin places.

I would now like to say a few words about another article by "WASH." I am referring to the article entitled, "Proper Drafting and the Use of Waste," which appeared on page 793 of the May issue. I would like for "WASH" to explain to me how he figures the meshing of metallic rolls only takes place on the sides of the rolls. So the portion of these rolls which draws the stock does not mesh?? What does all of this mean? I would like an explanation.

In one paragraph of this article he asks us to picture in our minds if we can what happens when waste is used with raw stock. Well, it all depends upon how it is mixed and who does the mixing. When we are bound to run waste with raw stock, instead of kicking, we should find the best possible means of running it to the best advantage.

We have a system of making waste laps through the breaker picker and running these laps, one with three of raw stock through the finisher lapper. All waste is run in this way, and used with our lowest grade, thus keeping waste out of our other grades.

I am sure if waste is mixed properly, those slack and tight webs, if caused by waste, will not exist on the drawings, as stated by "WASH." Worn collars cause that deficiency, and not waste altogether. I have had webs on drawing frames running tight on one side and slack on the other, and seeing this, reversed the front roll, to then find that the condition was reversed.

By his statement regarding tight and slack webs, "WASH" infers that waste gets only in the slivers running on the sides of the rolls. This seems very odd to me, and it is very seldom that it occurs to my knowledge.

In the latter part of his article, "WASH" asks what would happen if we dumped a box of waste into the automatic feeder. I think I know—we would get a "bung-up" and a lot of swearing from the picker man.

D. E. (R. I.)

Polishes Rings and Rails Once a Year.

An interesting idea for consideration in connection with keeping the spinning frames in first-class shape.

EDITOR COTTON:

A thing that is very beneficial to spinning and is very easy to do is to polish the rings and ring rails of the spinning frames about once a year.

The frame is stripped of all bobbins and the ring rail run up to the top of the spindles. Make a paste of either pumice stone powder or rotten stone and engine oil. Using a brush similar to about half a guide-board brush, the inside of the ring and the ring rail on top is thoroughly rubbed, using the paste mentioned. Then, using a spinning band with some of the paste on it, the outside of the ring is polished by putting this band around the ring and passing back and forth.

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After the rings and rails are thoroughly scoured with this paste, the residue is wiped off with clean rags. The improvement in the spinning will be surprising. This is especially noticeable where rings are rough and doffing is hard, due to ends coming down after doffing. This remedies the trouble completely and the frames are 75 per cent easier to doff.

CONTRIBUTOR NO. 4816.

What Causes Loopy Filling in Sateens?

Here is a chance to give some helpful information. You are invited to discuss this question.

EDITOR COTTON:

I should like to see some discussion in your "HOW OTHER MEN MANAGE" department as to the probable causes of loopy filling on warp sateens. The difficulty I have in mind is not loopy selvages, but small loops of the filling appearing across the cloth on the face of the goods. The goods on which we are having trouble are 53 inch 96x64, 1.32 warp sateen, with 18s warp and 12.50s filling, using a twist multiple of 3.79 in the filling.

I should very much appreciate a full discussion on this by your readers, pointing out any causes which may have been found of this difficulty, and giving complete remedies for it.

CONTRIBUTOR NO. 4814.

Causes of "Fuzzy" or "Hairy" Yarn

This man says that worn rings, while not coming in contact with the yarn, can cause "fuzzy" yarn. Do you agree?

EDITOR COTTON:

During a recent meeting of southern spinners the following question in substance was asked: Do worn spinning rings cause "fuzzy" or "hairy" yarn? "T. A. D. (GA.)", in the March issue of COTTON also asked practically the same question. The writer's recollection of the answers to this question is that they were inconclusive and for that reason wishes to express his views in this connection.

The answer, briefly, is that worn spinning rings *do* cause "fuzzy" or "hairy" yarn.

The most impressive experience, to my knowledge, in substantiation of this statement was encountered in a plant twisting several fine filaments of rayon into a coarser yarn, a flanged ring such as is used in cotton spinning being used. It was found when the under side of the inner flange of the rings became slightly worn, this wear being of a wavy, irregular nature, some of the filaments of the rayon were cut and stood out or radiated from the core or body of the twisted yarn. This resulted in the same kind of condition (except that it was much more noticeable and made seconds in the case of the rayon) that we have when cotton yarn is chafed or roughened. So pronounced was this trouble in this rayon twisting plant that a different style ring was adopted to eliminate the difficulty.

Without considering the fact that rayon filaments do not have the spirality of cotton fibres, which fact has no importance in this discussion, we

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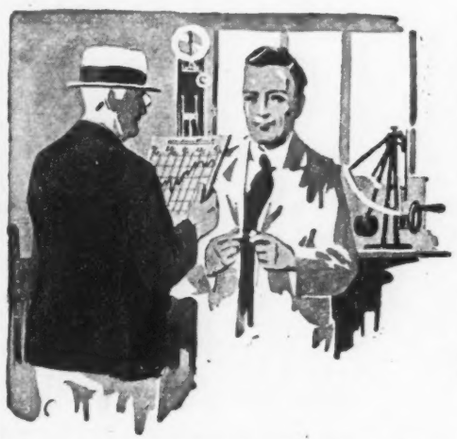

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can say, for purposes of spinning or twisting, the difference between the fibers or filaments of cotton yarn and rayon yarn is that the rayon fibers are thousands of times longer than the cotton fibers. Thus when a worn ring caused a filament of rayon to be cut, the imperfection in the twisted yarn was at once apparent. The same thing happens when cotton yarn is spun on worn rings, but we have become accustomed to the cotton fibers radiating from the yarn and we have not looked as closely as we might into the chafing of the yarn by worn rings. The gentlemen who propounded the question which is the subject of this article had by observation or reasoning, or both, been let to suspect worn rings as a cause of "fuzzy" yarn.

Why do worn rings cause "fuzzy" yarn? To my mind, the answer is this: Due to a number of causes and conditions spinning rings wear irregularly and wavily, as previously stated. The ring does not come into direct contact with the yarn, but does come into indirect contact with it through the medium of the traveler. As the traveler moves over the uneven surface of a worn ring a sawing action between the traveler and the yarn results, the yarn being held at an almost fixed angle and the traveler sawing back and forth over the yarn. When the traveler, after several days running, becomes worn by the constant passage of the yarn through it, the chafing action is accentuated.

I do not doubt that there are other reasons for worn spinning rings chafing the yarn and the writer will be greatly interested in reading the expressions of others in answer to this question. It should be borne in mind that "fuzzy" yarn is not as strong as smooth yarn.

CONTRIBUTOR NO. 4793.

Preventing Good Cotton Going into Dust Room.

EDITOR COTTON:

In a recent issue, "H. F. (N. C.)" asks for suggestions to eliminate a trouble he is experiencing with a No. 6 fan and condenser. Too much good cotton is going into his dust room.

I believe his difficulty is with the leathers not making a good contact with the face of the screen heads. This allows the fan to draw a good percentage of the cotton between the leathers and the screen heads and then on to the dust room, along with the dust and other dirt.

We have overcome this in a simple and effective manner. Reference to Fig. 1 will aid the reader in obtaining a clear understanding of how this trouble can be overcome. The strap *D*, about one inch wide, is placed around the leather *C* on the circumference of the screen head *B*, and is connected at the ends by the spring *E*. This spring is about two and one-half inches long, wound of No. 22 piano wire on a quarter inch arbor. The spring must be just stiff enough to keep the leather *C* in close contact with the screen head *B*, and yet not so stiff that it tends to retard the motion of the screen *A*.

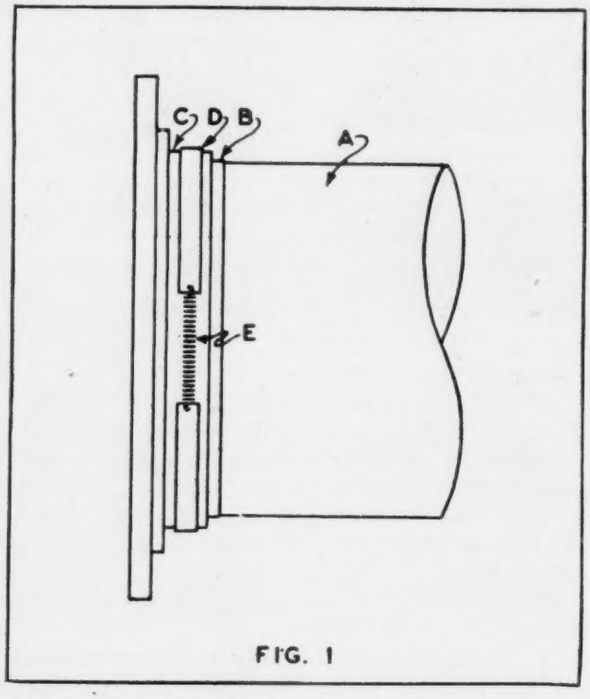


FIG. 1

In the sketch, only one end of the screen is shown, but, of course, the other end is the exact duplicate.

This idea, if properly applied, will save from two to three per cent of the cotton from going into waste.

CONTRIBUTOR NO. 4812.

Methods of Inspecting Skein Yarns.

Several men give their methods of inspecting skeins of yarn. Other readers with experience are urged to do likewise, particularly if they have a different method.

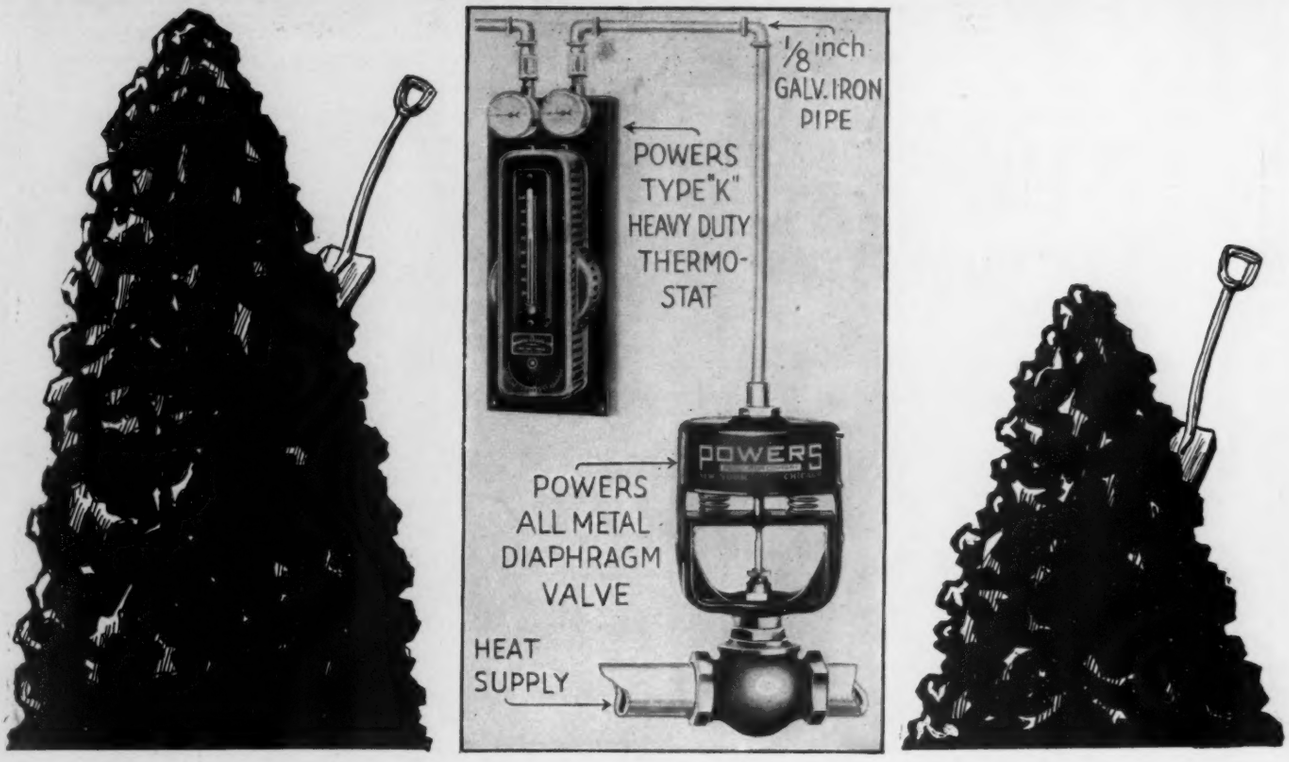
EDITOR COTTON:

This is written in reply to the questions of "CONTRIBUTOR NO. 4745," in a recent issue, with reference to inspecting skein yarn.

The most efficient method of inspecting skeins of yarn or thread, that I am familiar with, or have ever heard of, is the system of placing the skein on a whipping or snapping post. If the inspection is to be merely a superficial one, the worker simply glances over the skein which may be placed in sets of six, eight, or as many as can be conveniently put on the pole. After glancing at the surface nearest her, the worker turns the skeins inside out, and inspects the inner surface. All skeins which show faulty work are picked out by the inspector and put to one side to be dealt with either by the same worker, or by some other worker, or returned to the department or mill from which they came.

If a more critical inspection is desired, each skein is handled individually. The worker places the part of the sken nearest her over the palm of her left hand, and with the forefinger of the right hand separates the threads into skeins, at the same time looking for imperfections. When the front side has been looked over, the skein is turned inside out and examined again.

Inspection in this manner usually suffices in de-



Pays for Itself the First Year

In the June issue of this publication, the advertisement of the Powers Regulator Company featured the Automatic Temperature Control System installed in the Walton Cotton Mill Company. The Superintendent stated that this equipment reduced fuel consumption one-third—*enough to pay for the installation the first year.*

In the August issue of this publication, the installation featured was at the Trion Company mill at Trion, Georgia, where fuel savings of as much as 25% are reported by the management.

Other installations have been fully as successful, affording nice, clear profits after the first year.

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tecting such faults or imperfections as singles, corkscrews, doubles, faulty twist, mixtures, and such other faults as might affect the thread as a whole.

Should it be required to remove the smaller faults which cannot be detected by simply inspecting the outside and inside of one portion of the skein, then two or three places in the circumference of the skein must be scrutinized. Examination by this method will reveal such faults as short parts that have become incorporated in the yarn or thread at the spinning, twisting or winding machines—knots, bunches and so on.

Occasionally, in a high-class yarn or thread which warrants an expenditure of time and money, an inch-by-inch examination of each skein is undertaken. In this inspection there should be little in the way of faulty work that will escape the inspector.

Sometimes the following inspection will answer the purpose: The inspector merely picks up the rolled skein or bundle of skeins, as the case may be, glancing over it and setting aside any that show faulty work. The skeins are then unrolled or removed from the bundle and the defective parts cut out, or the skeins returned to the department or mill from which they came. Obviously, this method is not to be recommended when a thorough examination of the yarn or thread is required.

CONTRIBUTOR NO. 4754.

EDITOR COTTON:

This replies to the injuiry of "CONTRIBUTOR NO. 4745," who wished to have various mills tell of their findings as to the most satisfactory method of inspecting skein yarn. This man stated in his inquiry that he understood there are a few mills which use a special method of inspecting skein yarn with spools, whereby they are in a position to turn the skein around without any roughening up or interfering with the diamonds.

We have found that the proper inspection of skeins should start with the close inspection of the bobbins before they are placed on the reels. In the case of single yarn defects, such as tangled bobbins, smutty yarn or cockled yarn, these can be detected and laid aside, this being especially true where a filling wind is being used. In the case of two-ply or four, slack yarn, greasy yarn, or broken ends may be detected, as may also singlings or doublings, and these may be clipped near the defect and the defects thus prevented from getting into the skein at all.

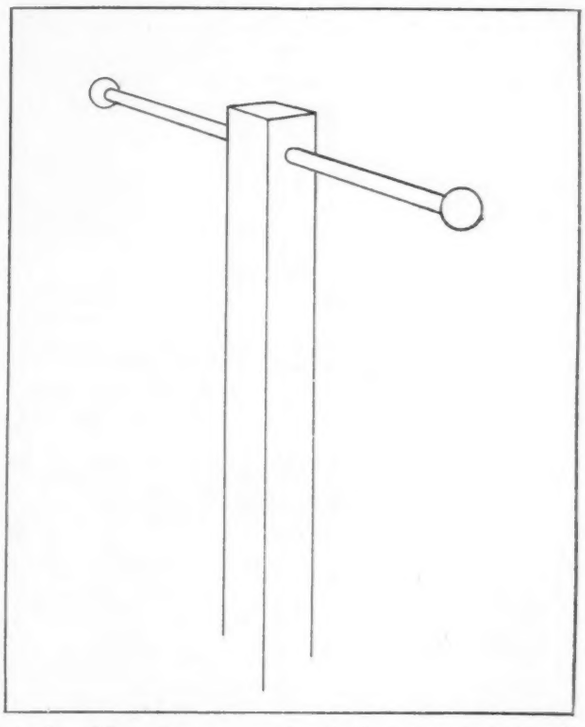
We have found that the practice of having the inspector examine each skein separately, spreading out the skeins and looking at them from both sides, gives the best results. Skeins should never be inspected in bunches of six or eight skeins, as is often done. The device used for hanging the skeins for inspection, which is in common use, consists of a metal rod or pipe arranged in a horizontal position within easy reach of the inspector.

We do not use the spool method for inspection. However, from time to time we do use the spools to change tie bands. For example, to change a tie band from figure eight to plain or vice versa. This device is made by the use of two spools set far enough apart to take the skein without tension, and this permits the slipping on of the skein without disturbing the diamond. The skein is then easily pulled into any position as the spools are free to turn. I do not know whether this is the same device as mentioned by your inquirer or not.

G. W. (N. C.)

EDITOR COTTON:

This is written to discuss the question of "CONTRIBUTOR NO. 4745," to ask for different methods of inspecting skein yarn. The most satisfactory method I have found, and the one in use in my mills, is to build an inspection post of hard wood, sanded and shellacked. This allows rapid and complete inspection and does not roughen or disarrange the diamonds. My posts are made similar to the sketch in the accompanying illustration. The bar is built-up hardwood turned three inches in diameter with six-inch diameter knobs at the ends to prevent the skeins from falling off. There is 30 inches of working space on each side of the post, so that two inspectors can work at once. The post is 8 inches square, built up and fastened securely to the floor with angle irons. I have found it best to set the post in front of the window for the sake of good light.



CONTRIBUTOR NO. 4758.

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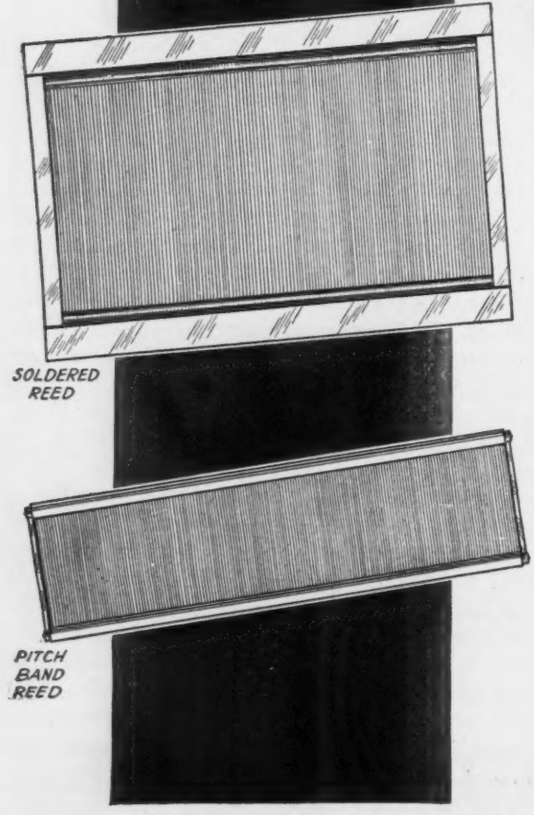

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Answers to Cloth Room Questions.

Cloth room men are especially urged to join in this discussion, and to submit other questions relating to the cloth room.

EDITOR COTTON:

I note in a recent issue of COTTON that "A. E. (S. C.)" wishes to develop some discussion on cloth room practices in your "HOW OTHER MEN MANAGE" department. He asked two questions which I shall endeavor to answer. The first was, he wanted to get the opinions of other men as to the best speed that can be used on a folder, keeping in mind the quality of the work as well as doing justice to the machine.

This is a rather difficult question to answer with any degree of satisfaction. The cloth room is the one department in the mill which up to now has been given comparatively little consideration. It is my observa- sidered satisfactory; but if it is not satisfactory, ap- tion that almost any kind of machine seems to be con- parently it must be used in any event. As you know, it is somewhat of a general practice, that the cloth room is altogether too small when the mill is first built, and when later additions are made to increase production, it frequently happens that the cloth room equipment remains of the same size. In such a case, as no additional cloth room equipment is installed, the only solution is to speed up the machine to take care of the increased production, or else to run the cloth room at night.

The average mill runs its folders fast enough to keep up with production, so that it is hard to give any fixed speed at which to run them. A cloth folder will run from 90 to 110 yards per minute and do excellent work on all classes of cotton goods. I could point out mills where folders are being run from 50 yards per minute up to 154 yards per minute, depending entirely upon the production. The only rule I know of that is given in connection with the cloth room folders is that it is pointed out that the tight and loose pulleys are 10 inches in diameter, and that when running 250 r.p.m. they will fold 75 yards of cloth per minute.

This man's next question asked, "On narrow sheetings, what is the average variation in measuring cloth on a folder?"

This question is not entirely clear. It possibly means the variation in the length of the fold. There are a good many things to take into consideration. On every folder the first four or five yards will tend to be short of the full 36 inches. This is accounted for by the fact that the cloth is being pulled out of the pan at the rear from under a pile of goods, and the folder blades have not reached their full speed. The cloth is under extra tension and tends to follow the blades back from under the jaw. After the first few folds, there should be no difference in measurement throughout a double cut of 120 yards. If four to six cut pieces are run, the top fold will tend to increase in length, although the variation throughout the cut should not at the most be over ⅛-inch, if the folder is in good condition. The new style folders with a single leaf to the table will give a more accurate measurement than the old style table which was split in the middle.

CONTRIBUTOR No. 4692.

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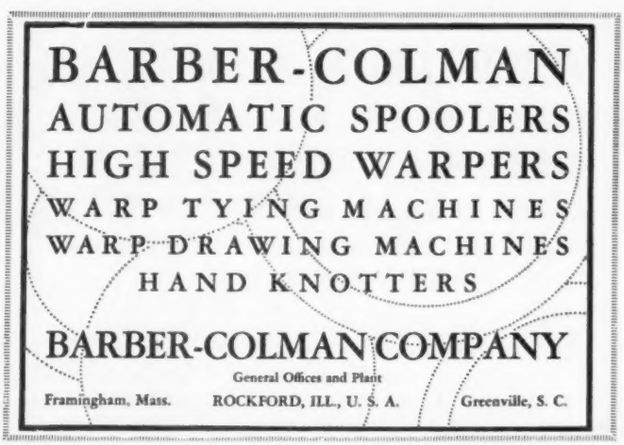

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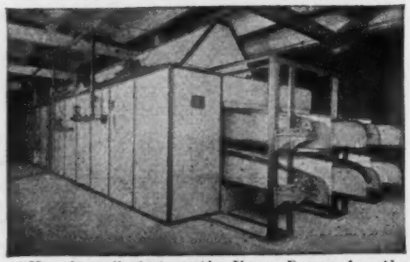

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Questions on Slashing.

Readers in a position to do so are especially urged to start some discussions on the various points brought out in this letter.

EDITOR COTTON:

As I am anxious to see some rather extensive discussion in your magazine regarding slashing I am going to give our ways of slashing, which will give your contributors something to shoot at.

Starting with the mixing of the starch and softener in the cooking kettles, we first draw our water in the cooking kettles and allow it to get luke warm. We then put in the softener and then the starch, which mixture is agitated for about thirty minutes. We allow this agitation to take place with all thin boiling forty-fluidity solutions except on Monday mornings. We have our instruments set so that the solution comes to a boil in thirty minutes; we then boil for one hour and turn the solution into a storage tank which is kept at a temperature of 210 degrees.

The compound, or softener, is pumped over to the size boxes where we endeavor to maintain a temperature of 205 degrees, while the cylinders are kept at a temperature of 210 degrees.

I would now like to ask the questoin, at what speed, in yards per minute, should the yarn (30s) be slashed under the aforementioned conditions? We have just completed putting automatic controls on our cooking kettles and size boxes and also have the steam to be carried by the cylinders automatically controlled, so now, by having the yarn tested out in the laboratories, we hope to arrive at some satisfactory conclusion as to the number of yards per minute we should slash. However, since we are just starting out with this system, I should like to hear from some of the readers of COTTON who have experience with this system relative to this matter.

When we have arrived at what we think the proper speed to run the slashers we will put up tags for the different styles, on which we will put the speed that particular style should be run. For instance, on a tag about 3x8 inches with the style and speed written on it, it would be possible to pass by the slashers and glance at this card and see if the slashers are being run at the proper speed.

I would also like to see some discussion on the best method of keeping loom beam heads in shape. We have the slasher men test out every beam on a bench in front of his slasher for trueness before putting the beams in the slashers. Those that are not true, we have re-bored, if possible, and new places located for the bolts. Some of the head ends of the wood beams are so badly worn that we have to throw them away.

In running warper beams on the slashers, how often should leases be run? Should they be run only when laps on the warper beams are found, or should there be certain times, regardless of laps, to run the leases? I would certainly like for some of the readers of COTTON to answer these questions for me. Then too, I would like for someone to outline a method of keeping streaks of hard size out of the yarn for me.

We have also had some difficulty taking the prop-

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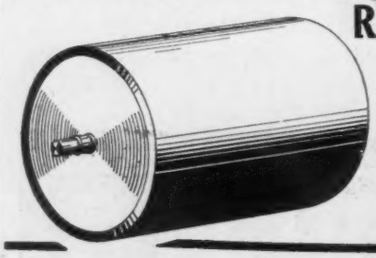

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er care of the flannel on the rolls over the size boxes after they have stood over the week-end. They get dry and hard from this standing. We unroll something like a yard and sprinkle it well with water with a short hose. We have one of these short hoses connected to a water pipe at each box.

I certainly hope to see some discussion of the different questions I have brought up, for I believe that it will prove helpful to me, and to others.

(T. A. D. (GA.)

Further Discussion on Bow in Wide Sheeting.

EDITOR COTTON:

In order to help along the discussion of the causes of bow in different fabrics, which discussion has appeared in recent issues of COTTON, there are a few observations I would like to make.

The cause of bow in any fabric is filling contraction. Mechanical defects on the loom and wrong treatment in the subsequent processes may further accentuate this trouble. Excessive shuttle tension will also tend to increase the amount. The construction of the fabric itself will determine the amount of bow and the only way to effect a permanent cure is to alter the construction of the cloth.

The writer has woven fabric over 20 feet wide in which there was absolutely no bow, and on which a straight edge would follow the filling from one side to the other in perfect line. Perhaps that seems to many readers an outright exaggeration, but I assure them it is not.

It is entirely a matter of increasing the amount of warp, either with a greater number of ends per inch or heavier single ends, until the warp weaves absolutely straight from the back whip rolls through the harness and reed and over the breast beam and sand roll. Doing this does not eliminate the tendency of the filling to contract. This tendency remains, but the warp portion of the fabric being at maximum density, there is no place for it to go. Consequently, the filling is held in the fabric under the tension at which it was originally placed there.

This brings the question down to its fundamental basis. In practice it becomes necessary to decide if it is of value to go to the extreme indicated. Probably in most cases the elimination of bow by this means would ruin other needed features of the fabric.

The idea of the convex breast beam or bow board is to draw the filling in a curved line from side to side of the cloth so that when the weaving tension is released the filling contraction will only be sufficient to pull it straight and leave it at rest without further tendency to contract.

CONTRIBUTOR No. 4704.

I once wrote an article that I could have sold for considerably over one thousand dollars if I would have signed my name to it so that a certain manufacturer could use it as advertising matter. Later it was published in COTTON *and any mill man could buy it for $1.00, the subscription price. Do you realize the valuable information you are getting so cheaply?*

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1. Cotton Picking, Carding and Spinning—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. Pepperell Equipment—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. The Bahnson Master Control—Bulletin No. 301, 5 pages. Illustrated. Automatic device designed to control humidifying equipment so as to maintain a constant relative humidity. By The Bahnsen Company, Winston-Salem, N. C.

6. "Cotton" Weather Vein, 32 pages; **"Rayon" Weather Vein**, 40 pages; house publication, illustrated. Bulletin 58, 80 pages, illustrated; **Manufactured Weather**—the automatic control of air conditions within buildings. Carrier Engineering Corporation, Newark, N. J.

8. Stewart Compounds for Roving Frames—Illustrated literature on roving frame operation. By Precision Gear Co., Gastonia, N. C.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

13-A. Equipping Modern Textile Plants—Booklet. 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. Also **Dyed in the Truth**—Reprints of advertisements of special interest to textile dyers. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

14. Emerson Conditioning Ovens—2 booklets on conditioning of textiles, or determination of the amount of moisture in textiles. Issued by Emerson Apparatus Co., Melrose Highlands, Mass.

15. Saving Labor, Material and Power in the Textile Industry—Bulletin No. 133. Illustrated. Controlling, Recording and Indicating Instruments in textile mills. Temperature, Pressure, Humidity, equipment layouts and descriptive applications. The Foxboro Company, Foxboro, Mass.

17. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

19. Quaker City Chemical Co.—48-page booklet containing useful information, tables, formulae, on dyeing, bleaching and finishing all textiles. Issued by above company, 2736 North Broad St., Philadelphia, Pa.

20. Bleaching, Dyeing, Finishing and Printing Textile Goods—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

22. Tragasol and Its Uses—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

24. Wyandotte in the Textile Mill—90-page booklet with information on bleaching, dyeing all textiles, including hosiery.—J. B. Ford Co., Wyandotte, Mich.

26. The Guide Post—18-page booklet showing porcelain guides, rollers, eyes used by textile mills.—By Page-Madden Co., 277 Ralph Ave., Brooklyn, N. Y.

27. The Seven Factors of Belting Economy—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 33 Ferry Street, New York, N. Y.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31. Aluminum Paint—The Coat of Metal Protection—Booklet, 46 pages. Illustrated. The protecting and light reflecting qualities of Aluminum paint; its advantages to textile industry; where it is used; specifications. By Aluminum Company of America, 2400 Oliver Bldg., Pittsburgh, Pa.

32. Flooring, Open Steel, Area Gratings and Steps—Folder, 6 pages. Illustrated. For platforms, walks and stairs; non-slipping. By Kerlow Steel Flooring Company, Jersey City, N. J.

33. Cast Iron Columns—18-page booklet on use of cast iron columns in mill construction. By National Cast Iron Pipe Co., Birmingham, Ala.

34. Ornamental Iron & Wire Work—64-page booklet showing movable wire partitions for stock rooms, etc. Also other iron and wire installations. Badger Wire & Iron Works, Milwaukee, Wis.

35. Seating Equipment—Automatic, adjustable, ten inch height adjustment, all steel, mill and factory seating specialty, illustrated booklet. 10 pages. Vitek Manufacturing Company, Omaha, Nebr.

36. Hosiery Inspection, Seamless and Full Fashioned—Illustrated folder. Also describes new Leg Examining Machine for full fashioned ladies' stockings. Edward R. Ammon, Reading, Pa.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness, and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog of Reading full fashioned machine with general information on subject of full fashioned knitting.)

39. Trend of Sales of Silk, Rayon and Cotton in the Piece Goods Departments; twenty-four-page booklet; prepared by DuPont Rayon Company in conjunction with National Retail Dry Goods Association. Copy furnished without charge by either of above. DuPont Rayon Co., 2 Park Ave., New York, N. Y.

40. The New Competition in Color—20 page illustrated booklet. Discusses future trends in business and their significance, present trend toward fast colors in textile industry and opportunity this trend offers for increased profits is properly utilized. By Franklin Process Co., Providence, R. I.

41. Budget Control—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits.—By Ernst & Ernst. Accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on **Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.**)

42. Factoring—Booklet, 11 pages. Summary of Factoring Service provided for Manufacturers of Textiles. By Textile Banking Company, 50 Union Square, New York, N. Y.

44. Points of Interest in and Around Atlanta—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

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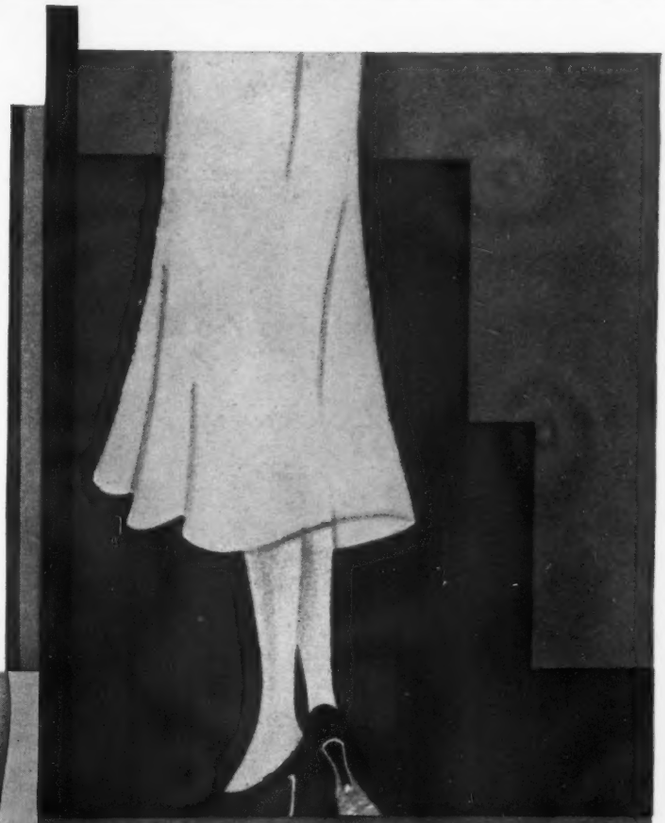

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Boil-Off Oil *for* Full-Fashioned

THE INFORMATION and discussion in this article, pertaining to boil-off oil for full-fashioned silk, appeared in several recent issues of COTTON. It represents the answers to a question on this subject, published in the "KNITTING KINKS" department. Since the answers appeared separately in a number of issues, we herewith respond to requests that the complete discussion be consolidated in this convenient form for reference purposes.—THE EDITOR.

IN A BACK ISSUE of COTTON, we published the following question:

What Is the Best Boil-Off?

EDITOR COTTON:

I would like to have some of the contributors to "KNITTING KINKS" give their ideas regarding the comparative value of a 23 per cent boil-off and a 25 per cent boil-off on full-fashioned silk used on 39-gauge machines.

Yarn bought thrown and in the gum is regularly designated by either 25 per cent boil-off or 23 per cent boil-off with usually an 11 per cent moisture allowance added. We are not interested in using a partially de-gummed yarn, but will knit on fabric from regularly back-wound thrown silk in the gum with percentages, of course, based on the gross yarn, including this gum. We have had varying results depending on local conditions, with each of these yarns on seamless work, but we have not as yet determined the preferred boil-off for full-fashioned goods, and if some of your readers will give us their ideas and experience on this point they would be helpful to us, and I feel sure that they will also be of interest to other readers.

CONTRIBUTOR NO. 4074.

In a succeeding issue, we published the first of several replies to this question, which read as follows:

23 Per Cent Versus 25 Per Cent Boil-Off.

EDITOR COTTON:

I was very much interested in reading the query of "CONTRIBUTOR NO. 4074" asking, "What is the best boil-off on full-fashioned silk, a 23 per cent or a 25 per cent?" I wonder if there are many users of silk who could be in the same position and wish to know which is the best buy.

Having handled silk for upward of forty years, and having worked with silk of all kinds—Italian, Chinese, Japanese, Cantonese, Bengalese, etc.,—I feel qualified to answer that query insofar as to give my opinion and a few points which will, no doubt, explain to this contributor and others interested in the difference, if any, between the value of a 23 per cent and a 25 per cent boil-off in thrown silk for hosiery.

To start at the beginning, I will give a brief sketch of what occurs when raw silk as it comes from the filature is sold to throwsters, or manufacturers. Before it goes into the hands of the buyer the silk is conditioned and assayed to ascertain the grade, quality, and the moisture content. At the present time there are several conditioning houses in the country that do that work.

Out of a shipment of silk, samples are taken from several bales, weighed correctly, then dried in an oven to constant dryness, and weighed again to find out the amount of moisture it contains because only so much moisture can be charged as silk and no more. That is called "conditioning". Then the samples are wound to determine the number of breaks in so many thousand yards, inspected for evenness, the deniers ascertained, and graded accordingly. That is called "assaying".

After these operations are concluded, tickets containing a full and detailed account of the findings are written out, put back in the respective bales, and made to follow the shipment. The buyer will find these tickets in the bales that have been inspected, or he may demand them for his protection.

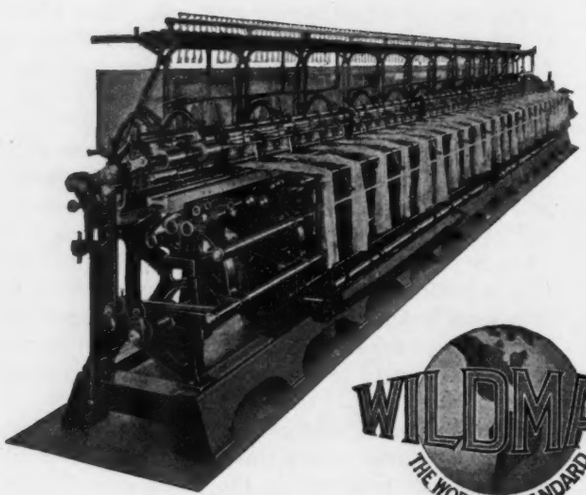
I mention this because a few years ago while working for a silk manufacturer, who should have known about it, I was surprised when he handed me a ticket and samples he found in an assayed bale of silk, with the remark: "Why do they send me this? What is it all about, anyway?" I explained to him, and told him they could have sold him a good many pounds of moisture for the high price of silk, and he would have never known it if it was not for the conditioning house ticket showing the exact amount of silk and moisture in that bale when it left the warehouse.

There may be to this day some manufacturers who would be glad to know that their interest is so well taken care of when buying raw silk. This silk contains, according to the quality and breed, from 18 to 28 per cent of sericin, which is the gum covering the raw silk, and is subsequently discharged in the degumming or boil-off operation.

Each quality of silk has its own average of boil-off gum. Japan silk is mostly used for hosiery, and will be considered now. Its boiling-off average in the raw condition, or as it comes from the filature, is from 18 to 20 per cent, or more, and cannot be controlled. In this condition, however, it is never used. Even when it is used in a single thread without any throwing, as for making warps or cheap ribbons, it must be wound on spools, and in order to do that the gum must be first softened.

The throwster engaged in preparing silk for hosiery has three operations to perform: winding, doubling and twisting, in the order named. Before he starts winding he must first soften the gum of the raw silk to loosen up the threads. and hard spots caused by the tight packing in which the silk is shipped. That he does by opening up the skeins, and soaking them in a lukewarm solution of soap, and other ingredients are used to improve that soap solution. Each throwster has his pet formula for it. The writer's best was olive oil soap, neatsfoot oil and glycerine or

A child learns to put the heavy blocks at the bottom



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borax. The opened up silk was tied in bundles of ten skeins each, and soaked over night in a vat, soaking enough silk each time for one day's work.

Of late years there were brought in the market for the throwster, many preparations, each sold to the trade as best for the purpose. Throwster oil, throwster soap, this and that, some heavy soaps intended to remain in the silk and increase the weight as much as possible, other ingredients to do the same thing. At least one firm started selling thrown silk to hosiery manufacturers, which was loaded in the gum with the well-known process called the "tin-phosphate-silicate process," the silk thereby having been weighed permanently from two to six ounces more to the pound with the idea of having the hosiery appear heavier than it really was in the pure silk.

The most common practice, however, is to use in the throwing mill a solution that will remain in the silk after throwing, only to be discharged when the goods are boiled-off ready to dye. The idea is to keep the silk as hygroscopic (capable of absorbing and retaining moisture) as possible. As so much and no more moisture is allowed to be sold in the silk, it is plain that if the soap, or oil, or whatever the throwster chooses to use, could be kept from drying out of the silk as the moisture will, silk would be heavier but, except in the case of the tin loaded silk, that weight would strip with the gum in the boil-off.

Now the silk that is sold as 23 per cent boil-off is, in the opinion of the writer, processed in the throwing plant with the proper amount and best of emulients to condition and soften the gum of the silk as it should be for good work, while the silk with a higher percentage of boil-off must of necessity contain the impurities loaded on it with the heavier soap, or something else that the throwster saw fit to put on the silk in order to lower the price.

What happens then when buying the so-called 25 per cent boil-off silk may not be clearly apparent to the buyer, but that two per cent more that is loaded for the boil-off means many yards of silk that will knit stockings, but will dissolve in the boil-off bath together with the gum of the silk; then the extra two per cent that drops from the goods and is discharged in the boil-off bath, also, will give the dyer something else to fight against. It may be innocuous, and it may not. It may be the cause of those mysterious grease spots that constantly crop out from unknown sources, and are a constant source of despair to the already harrassed dyer.

In the writer's opinion that extra two per cent boil-off may also be the cause of some of those mysterious sleazy silk marks that are at the present time affecting the whole knitting fraternity, on both circular and full-fashioned. It has been said that many causes may produce sleaziness, but so far nobody seems to be able to entirely eliminate them, nor assign the true source for it.

The latest wrinkle that has come under the writer's attention, and may be traced directly to a bad soaking solution, used by some throwster, is the tendency of having different shades in a lot of dyed hosiery when the silk is bought from several dealers, and used promiscuously. It is dyed perfectly even except that some stockings will be darker and others lighter in the same batch. When a stocking was found in a boiled-off lot that contained two shades, as shown in illustration, and it became apparent that the silk from two throwsters had been knitted into it, and investigation was started and the result indicated that one of the throwsters had used a mineral oil solution in soaking and that caused the silk to turn yellowish in the boil-off. When the mineral oil was eliminated no more yellow silk appeared.

From the above exposition of facts, "CONTRIBUTOR No. 4074" can draw his own conclusions as to what is the best boil-off to buy. The argument is by no means exhausted. Some other reader may have something more to offer on this question, that I am sure is both vital and interesting at the present time to the contributor, the writer and the whole silk knitting industry.

FARBER.

Then, later we published the following second reply to this question:

EDITOR COTTON:

Replying to "CONTRIBUTOR No. 4074" concerning the comparative value of 23 and 25 per cent boil-off on full-fashioned silk used on 39-gauge Reading machines, will say, I do not believe it makes much difference whether he has a silk of 23 per cent boil-off or a 25 per cent boil-off, as long as he knows which grade he is supposed to have.

We have a throwing plant of our own, and also have much throwing done on the outside by the commissioned throwsters. The work done on the outside is on a guaranteed 23 per cent boil-off basis. We find this gives very satisfactory results. In our own plant we aim to keep on about the same basis. However, there are times when much silk will run exceptionally hard, and when a small addition of oil is used better results are obtained to a great extent on the condition of the raw silk.

In knitting full-fashioned hosiery, the silk must be in a soft and pliable condition as it reaches the needles. If the silk is in such a condition to take moisture readily, thereby enabling the contributor to make an even, smooth stitch, the actual per cent of boil-off, I believe, does not make much difference. Of course, he must know what his per cent of boil-off is in order to keep his cost figures correct.

CONTRIBUTOR No. 4082.

Then, later, we published the following two replies:

In reply to the question of "CONTRIBUTOR No. 4074," appearing in a recent issue of COTTON, regarding the comparative value of 23 per cent boil-off and 25 per cent boil-off on pure silk, would say that the comparative values depend entirely upon what is desired to be accomplished.

Generally speaking, we believe that 25 per cent is always best for seamless machines, and 23 per cent or less is better for full-fashioned machines. It is, however, thoroughly possible to adjust either 23 or 25 per cent boil-off to both types of machines. So the most important thing to take into consideration is the condition on which silk is purchased. If "CONTRIBUTOR No. 4074" is buying his silk in skeins and having his throwing done by a commission throwster and has

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specified 25 per cent boil-off, the excess boil-off is not an item of cost to worry about; but if he is buying silk on cones and paying the price of silk for the excess boil-off, he should at least realize that he is paying a pretty high price for soap and oil.

In the operation of full-fashioned machines it is desirable to have the silk thoroughly wet by back-winding and allow enough time for silk to thoroughly soften before being run. From the fact that excessive boil-off is more difficult to penetrate with moistening solutions, and from the fact that it is more liable to flake off after being wet, it is generally found more desirable to have silk for full-fashoned machines made with 23 per cent boil-off or less.

On seamless knitting wet silk does not lend itself favorably for the operation, and since there is nothing more helpful in making good fabric in a knitting machine than having the gauge of the machine well filled with yarn, it is ofttimes desirable to have a heavy boil for seamless knitting, which permits a better stitch control than could be had on low boil-off yarns.

CONTRIBUTOR No. 4079.

Then, later, there appeared the following discussion of this matter from another man:

EDITOR COTTON:

Answering the inquiry of "CONTRIBUTOR No. 4074" concerning the comparative value of 23 per cent boil-off and a 25 per cent boil-off on full-fashioned silk, will say that I would prefer the 23 per cent on full-fashioned silk and 25 per cent on seamless silk.

Since the seamless silk is run dry from the original cone direct to the machine, the higher per cent boil-off makes a softer silk and will not crack or shear as easily in tight knitting. The stitch formation will be more uniform and the fabric will show less crepe effect.

The full-fashioned silk is run over a back-winding machine, the silk passing over a moistening trough and roller containing conditioning oil which lubricates the silk and softens the yarn and prepares it for the knitting machine. The full-fashioned machine is equipped with a humidor jar or box to keep the silk in condition, and in passing from the cone to the needles, it passes through saturated wicks, which wet the silk again. If the conditioning processes are properly done the silk will knit satisfactorily.

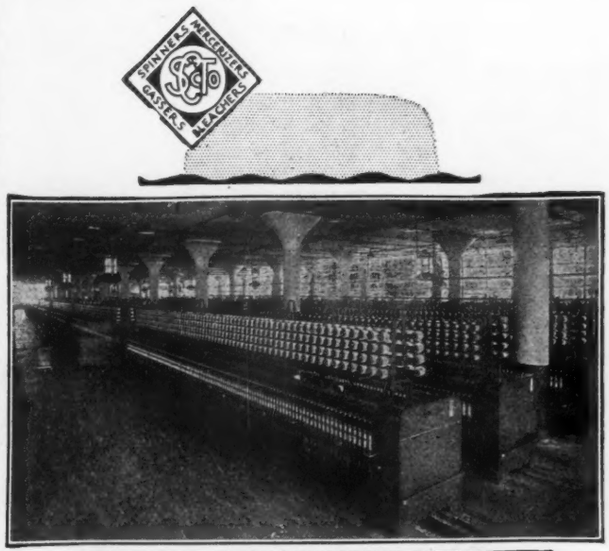
The method of stitch formation is more accurate and more positive on full-fashioned than seamless, and the moisture content is more important than the boil-off so far as even clear fabric is concerned.

The advantage in the lower boil-off on full-fashioned silk is obvious. The less the silk loses in the boil-off, the less sleazy the finished fabric will be. Then too, the danger of the silk degumming on the machine and stopping up the yarn tubes, will be less on the lower boil-off.

I believe that the 23 per cent boil-off has been almost universally adopted as the standard boil-off for full-fashioned silk.

CONTRIBUTOR No. 4080.

[Any readers desiring to express their views on this subject are invited to do so through the columns of "Knitting Kinks."—The Editor.]



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THE FIDELITY UNIVERSAL RIBBER

Backwinding Versus Direct Knitting.

Another man's idea on this subject which is attracting so much attention at this time. What is your experience?

EDITOR COTTON:

I notice on page 870 of the May number of COTTON, that "CONTRIBUTOR NO. 4724" has submitted some questions regarding full-fashioned work, asking whether it would be advisable for him to knit direct from cones, conditioned in a conditioning room, and eliminate the back-winding process. He says that he is at present backwinding all of his silk, consisting of 4,5, 6 and 7-thread, using a bleach glycerin softener, the mixture being one quart of softener to 10 gallons of water.

I was very much interested in this question, and to his inquiry as to whether backwinding is necessary, I will emphatically answer "yes."

In a number of years of experience in full-fashioned work, I have tried silk from practically all of the large concerns, and I have yet to find a silk that can make a better fabric without the old-fashioned method of backwinding.

Not long ago, I was given some silk to run direct from a paper board container, in order to determine how it finished up. Well, this silk ran good until *one* stocking was finished, and as soon as the knitter started on the next set, this cone was beginning to run dry.

I have used silk on aluminum cones which require 10 to 15 minutes of soaking in water, and my experience is that as soon as one or two stockings came off, these cones began to get dry. So this goes to show that if silk soaked in water will not soak thoroughly, surely a cone of silk put in a conditioning room dry will not be ready for direct knitting. I have, from time to time, visited many of the large mills, and find that the large majority of them are backwinding their silk.

I will grant the point that it is cheaper to knit direct from conditioned cones, but I believe it is worth the price to pay for this process and secure a definitely better quality stocking.

My recommendation and practice, therefore, is to backwind the silk and store it in a conditioning room for at least 10 hours. Then it is really ready for knitting.

Here is one thing which might be of assistance in this connection. In the backwinding solution, I would recommend the use of about one quart of bleached glycerin to 15 gallons of water, and then on the machines, in the trough, about one quart to 50 gallons of water. Of course in the case of backwinding solutions, it is better for a man to work out his own formula, because the water itself has a lot to do with the conditioning of the silk.

A man can also improve the quality of his merchandise by keeping the silk at the right humidity in the conditioning room.

CONTRIBUTOR NO. 5772.

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Stopping Loose and Tight Sinker Streaks.

A "kink" for preventing a very worrisome difficulty.

EDITOR COTTON:

Loose and tight sinker streaks on seamless knitting machines are one of the machine adjuster's chief troubles and worries, and cause a lot of grief. When the fabric is finished, they stand out like a "white mark in a coal black stocking," and naturally this causes a lot of finished work to be thrown into seconds.

All well posted machine adjusters know that the sinker cams are to be set to a certain standard; however, everyone knows that we can vary a little either way.

However, taking the standard way of setting the sinker cams, and after the sinker cams are set to the standard depth, if a man will allow a machine to knit, and stop it, and, without taking the fabric out, raise the cover and examine the work, nine times out of ten he can see where some sinkers are going in deeper than others. All right, what causes this?

As we know, once a sinker cam is set for a certain depth, the sinkers cannot go in any further, provided the center sinker cam is set accordingly,

and is not worn too much, which would give the sinkers play.

Now, we know that the sinkers cannot go in any deeper than the cam is set to allow. Naturally the trouble is that some are not going in far enough. What is the reason for this? I will explain what I found was the trouble, and how I eliminated it, doing away with our trouble in this connection.

After a machine has done considerable knitting, and is run pretty steadily, the sinker cap starts to wear and gets to a point where it is a trifle sloppy. The sinker cap is supposed to fit snugly on the sinker bed, so as to provide an accurate control of the sinkers from the sinker cams.

So, on our Banner machines, and Scott & Williams (old style head), I drilled two holes for 10/32 screws across from the sinker cams, and in each hole I placed a round piece of brass as a stud, then put the screw with a lock nut on it in the hole. In this way, I can draw the play out of the sinker cap, and this eliminates the streaks.

Of course, the screws are just even with the nut, and on some machines the bumper post must be cut out a little to allow the nuts to pass.

A. C. (WIS.)

Preventing Drop Stitches on H-H Work.

EDITOR COTTON:

In a recent number of "KNITTING KINKS," "CONTRIBUTOR NO. 4731" submitted some inquiries with reference to a difficulty of drop stitches in the welt, on H H machines, stating that the machine drops a stitch off of the jack needles in the transfer.

In reply, I will say that, as he intimated, it seems to us that the trouble in the machine dropping stitches in the welt is caused by the latch opener. The latch opener should not be less than 7/16th-inch long, round

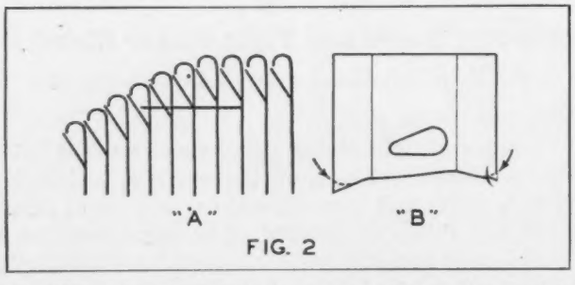

FIG. 2

and pointed. This should be placed just as the needles are coming up as shown in Figure 2-A. If the latch opener is too short, it will not lay the latch down far enough, and will fly shut. Care must be taken to set the latch opener so as not to hit the hooks of the needles, and not too low as to hit the bottom of the latch.

I would offer the following suggestions, also: Bend the latch opener so that the point will just miss the needles, with the back having a little more clearance. Have the needles nice and straight, see that the cylinder bands are all right, see that there are no needles without friction, because a loose needle will cause drop stitches, cutting off the cam on the drums so as to let the latch opener come in when the drum moves to cut off the stocking. Bring the throat plate in so as to just miss the head of the needles when lifting the carriage. By so doing it may be necessary to grind the outside edges to prevent bending latches, as shown in Fig. 2, B. See that the center cam has no rough places.

If the latch opener is being set with the carrier up, be certain that the latch opener is not hitting the carrier when down, or it will not come in. The same is true on the sinker top. It may catch on the screw in the ineccentric when the cyllinder rises at the start off.

If this man is getting drop stitches in the transfer on the jack needles, I believe it is coming from the latch opener. We have not had any of this trouble.

In the make-up, the rib knitting bracket will be found making two moves when it goes into action, then two yarns will go in for two courses. One coming out, rib knitting coming out on two moves, on the first move it must rise high enough to miss the low butt dial needles, if it does not it will push some dial needles out and therefore cause drop stitches in the low butt needles. Grind some off of the step on the cam on the drum, so there will be play between the needles and the cams on the bracket.

CONTRIBUTOR NO. 4740.

Friction Device for Tapered Heel.

EDITOR COTTON:

Sometime ago we equipped several of our Scott & Williams Model K machines with tapered heel attachments for making pointed and panel heels. We later ran into trouble with imperfect points and panels.

This attachment, which is shown by Fig. 1, consists of a main rack wheel, revolving on a shaft, and a rack wheel friction which is mounted on a bracket

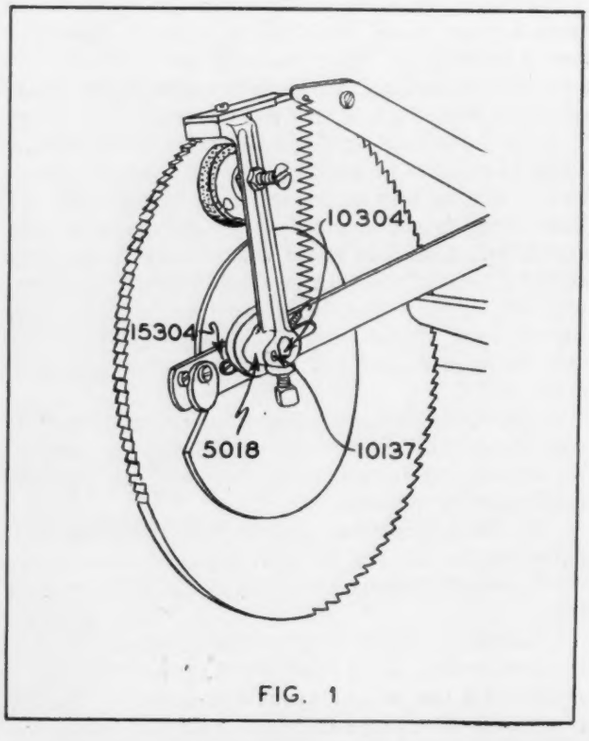

FIG. 1

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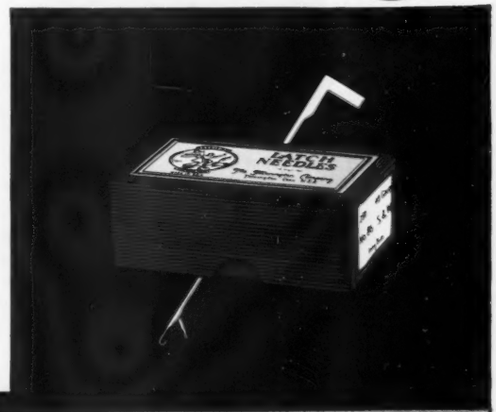

The red box with the green label.

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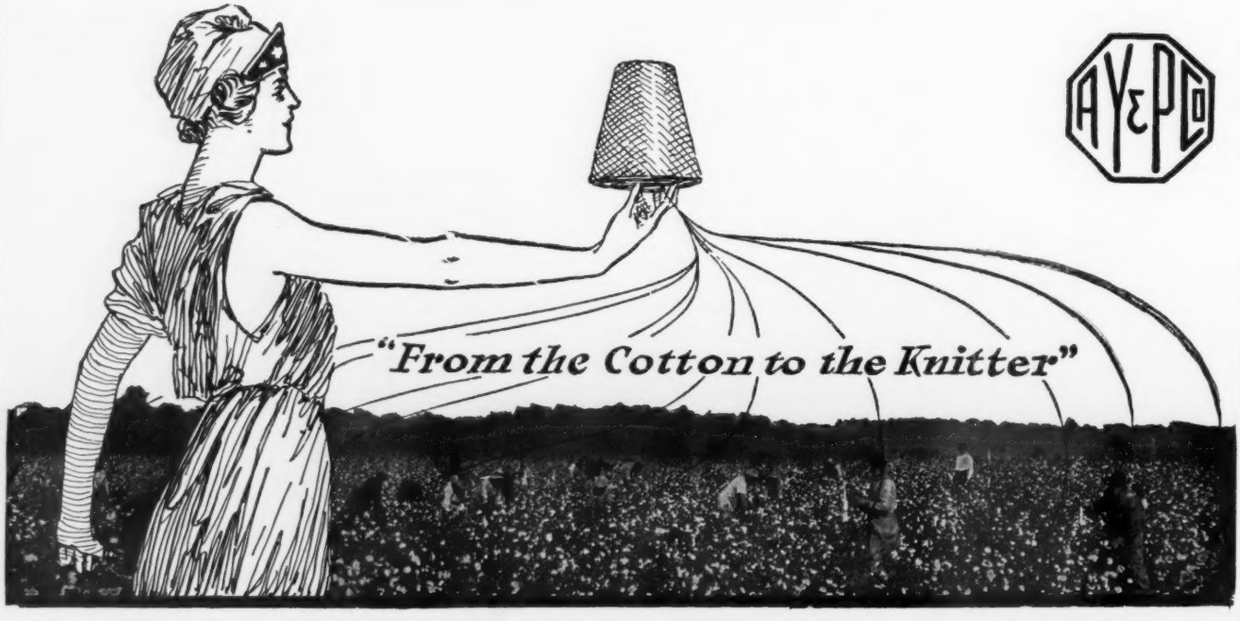
Reg. U. S. Pat. Off.

SPINNERS and MERCERIZERS



attached to the shaft, on which the rack wheel rides. This friction rides on top of the rack wheel, the purpose being, of course, to prevent over-throw during the time the racking lever is making the racks.

Our trouble has been with this rack wheel friction. We find that this friction, which consists of two pieces of spring steel about two inches in length, in bearing down on the rack wheel fails to hold it in position as each rack is being made.

The rack wheel itself, after being in use a short time, begins to revolve freely on its shaft, and the purpose of the friction is to hold it. The friction, however, fails to do this. As a result, two or more racks are made at the same time, or a back and forth motion of the rack wheel between each individual rack causes uneven lines along the points and uneven reenforcement in corners of heel gores.

In Fig. 2 is shown a practical friction device which is simple, inexpensive and easily adjusted to the machine, yet it causes every rack to be even. This new friction does away with the steel spring now being used by many, and also takes out every bit of slack in the rack wheel itself.

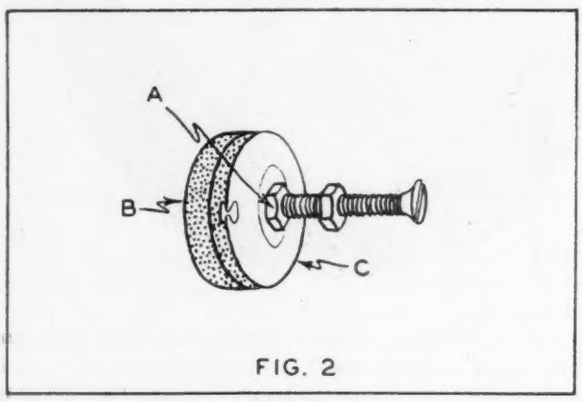


FIG. 2

The device consists of one 8/32-inch machine screw about two inches in length and three 8/32-inch nuts, *A*, Fig. 2; a piece of galvanized heavy tin about the size of a quarter, *C*, Fig. 2; and a piece of leather belting about the same size, *B*, Fig. 2.

To insert this on the machine it is necessary to remove the rack wheel bracket 5018 from the shaft and drill an 8/32-inch hole just far enough down from the top of the rack wheel bracket so that when inserted the friction will not interfere with the eccentric attached to the face of the rack wheel. If the hole is drilled from one to one and one-half inches from the top of the bracket there will be no danger of the tension device coming in contact with the eccentric The tension is attached to the bracket by means of an 8/32-inch machine screw and two 8/32-inch nuts.

By turning the set screw in or out from the bracket, the desired amount of tension is attained.

CONTRIBUTOR NO. 4806.

Young man or old man, do you realize that the opportunities for advancement in the textile business in the South are practically unlimited? There are a dozen good jobs where there is one good man to fill them.

Answers Question on Keeping Cylinder Down.

EDITOR COTTON:

Sometime ago "CONTRIBUTOR NO. 4620" said that he would like some information as to how a cylinder can be made to drop down to the proper level at each graduating kick. He stated that his machines, which are Scott & Williams machines, are equipped with the stitch graduating attachments, and that his main trouble is that at each graduating kick the cylinder has a tendency to bind in the cam ring. This trouble, according to the writer's experience, is a common difficulty on the Model K machines, but can be largely overcome if the proper care is given to the cylinder.

Our contributor stated that he had a large screen door spring fastened to the cylinder tube to pull down the cylinder. I think the weight of the cylinders themselves is sufficient to keep them down under ordinary conditions. This is provided the cylinder needles do not have too much friction, the cams around the cam ring do not bind the cylinder, and the inside of the cylinder around the gear ring is kept sufficiently oiled to prevent rusting.

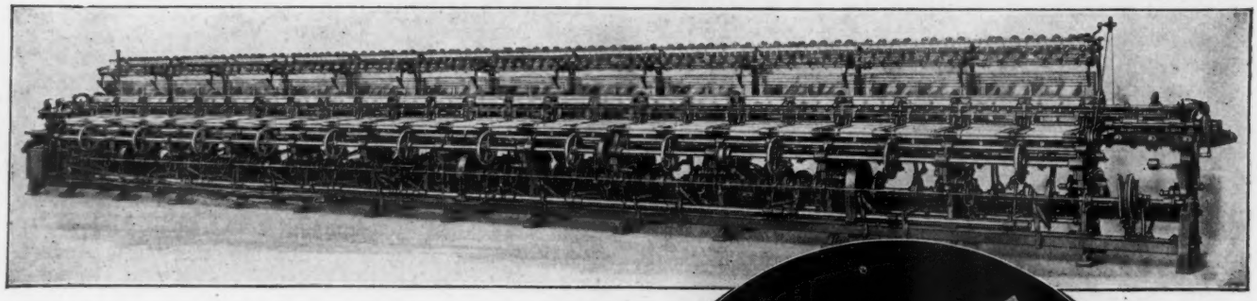
However, due to the fact that the insertion of a new set of needles in the cylinder, the inside of the cylinder not getting a sufficient quantity of oil, due to neglect, or cams not fitting correctly, the writer has also equipped his machines with the tube springs spoken of by "CONTRIBUTOR NO. 4620."

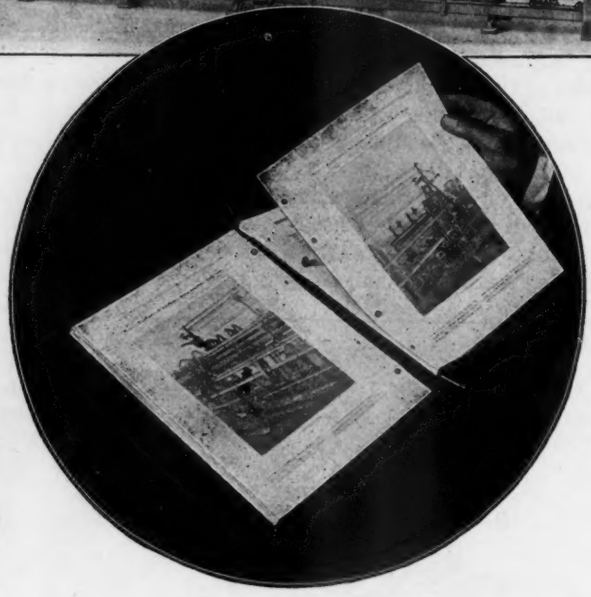
I use a screen door spring attached to the cylinder tube arm and to the bottom of the cylinder tube bracket which holds the cylinder tube in place. The set screw on the cylinder tube arm, which is just above the sinker ring cap, should be screwed down as far as possible without having the top stick when making the reciprocating motion.

The purpose of the graduating attachment is to gradually tighten the stitch by the lowering of the cylinder at each graduating kick. This is the reason the cylinder must work freely up and down in the cam ring.

Unnecessary friction on the butts of the cylinder needles is another cause of the cylinder not dropping to the proper level after each graduating kick. The friction on cylinder needles should be so that as the needles pass over or under the cams around the cylinder, the cylinder will not be raised or lowered at this time. The needles passing up and down in the slots of cylinders should do so without affecting the height of the cylinder—except, of course, when changes from one part of the hose to another is taking place, which is accomplished by the stitch regulating lever, and when the graduating attachment is in action.

Neglect of oiling of the inside of the cylinder is to my mind the most important cause of cylinder trouble. This oiling should be done systematically, and at least every two weeks. The oiling should be done by inserting a screw driver at the bottom of the cylinder tube, and while working the cylinder up and down, oiling around the cylinder and in the groove of the spline. Enough time should be taken at each machine to make sure that the cylinder drops to its lowest position without binding. If the cylinder does bind and can-





Pages 186-1 .. to 186-30

What do you know about Reinforced Selvedge and Shadow Clock attachments? Do you know that they will improve the sales of your hosiery? Do you know that we can supply these attachments for any Reading Machine immediately and install them in a few days' time? Are you aware that "Reading" and *only* "Reading" can give you this valuable service?

All the parts and motions for these important attachments are illustrated and described in the new thirty-page supplement to the Reading Parts Catalog. Have you received your copy? If not, send for it today and keep yourself informed on the latest mechanical developments in the full-fashioned hosiery industry. You are entitled to *and should receive* this kind of service from your equipment manufacturer.

TEXTILE MACHINE WORKS
Reading, Pa.

The "READING"
Full-Fashioned Knitting Machine

not be loosened enough by oiling, a little penetrating oil should be used and the same method of oiling as previously mentioned adopted. This is very necessary when the inside of the cylinder becomes rusty.

Careful attention should be given to the cams around the cam ring and stitch cam bracket. The stitch cam bracket may be too close to the cylinder, and the needle guard on the right hand up pick bracket may be in too far, which will cause rubbing of the cylinder.

I believe that some at times have four cylinder spring bands on the cylinder when three would be sufficient.

Another important item is keeping the walls straight around the cylinders. When these walls become bent undue friction is put on the needles, which in turn affects the height of the cylinder.

CONTRIBUTOR No. 4813.

Reducing Needle Consumption.

EDITOR COTTON:

"CONTRIBUTOR No. 4618," in a recent issue, asked for discussions as to reducing needle cost in manufacturing hosiery, and methods of keeping an accurate check on the needles used.

Following is a system which I have seen used very successfully.

Needles are kept in the warehouse and not in the manufacturing department. The stock room boy, head fixer, assistant foreman, or whoever is responsible, draws them out daily for use by the fixers as they in turn order from him. The first order is checked against the purchase and the second against the fixer on the monthly cost sheet of each fixer, thus giving two complete records. At the end of each month, the needle cost is figured on the basis of production, and the sheet posted showing the needle cost per dozen produced by each individual fixer, thus creating competition between the fixers and being a great aid in reducing cost.

Parts cost may be kept in this same way very successfully.

CONTRIBUTOR No. 4802.

Magnetism in Knitting Needles.

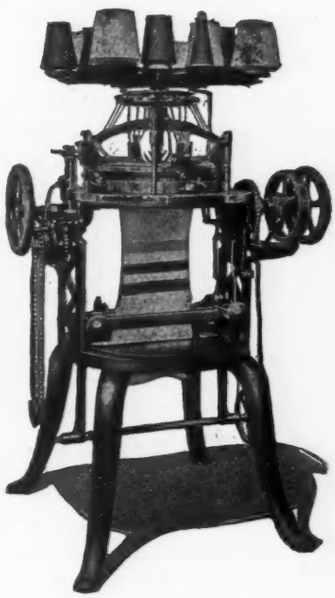
EDITOR COTTON:

I was interested in reading the inquiry submitted by "CONTRIBUTOR No. 4741" in the May issue as to magnetism and latch knitting needles. I would like to offer my experience on this point. Eight years ago I was connected with a mill in Tennessee where a steam engine with a 22-inch belt was being used as a main drive. One could walk into the housing of that belt and long blue blazes would leap from his person to the belt. That current is called static electricity, caused by friction, and our machines were badly affected by magnetism. Just recently I saw another case of this in a belt only two inches wide, cross driving two lines of machines and causing this.

I do not know whether this will be of any value in connection with this question, but thought I would submit it in case it might be of interest.

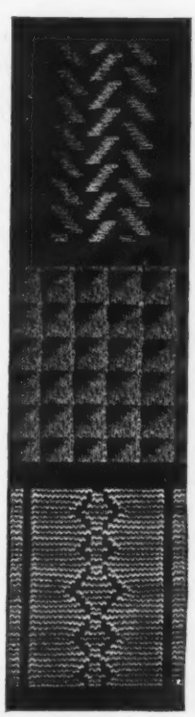
B. R. (GA.)

BRINTON CIRCULAR KNITTING MACHINES



Rib and Sinker Top Machines for Plain and Fancy effects.

OUTERWEAR MANUFACTURERS



assure the success of your merchandise by making them on Brinton's. They will perform up to your expectations if Brinton's knit them.

Brinton Knitting Machines are the biggest backing that you can give your sales force — the biggest help to your jobbers and retailers — the biggest value to the ultimate consumer.

Let us send you full information of our line

H. BRINTON COMPANY
3700 Kensington Avenue
Philadelphia, Pa.

The KNIT GOODS MARKETS

IMPROVEMENT in the market situation as applying to American hosiery was quite pronounced in August. This was fairly indicated in more active full-fashioned equipment—mills which had curtailed production radically resuming operations. Reports of idle factories getting back to some sort of working schedule came from various knitting centers to the New York primary markets. Philadelphia and sections of the South were particularly conspicuous in these reports, which, while they could not have included all mills which had increased their output, were of a character to be impressive, as representative of betterment in at least the silk full-fashioned division of the hosiery industry.

Perhaps more significant than unconfirmed but generally accepted statements of manufacturers picturing a stronger situation was the fact merchants had made a start with buying for fall. Possibly the first to come out with news of forward buying was O. M. Gaiser, hosiery and underwear buyer for John Wanamaker's Philadelphia store, who at the beginning of August announced having placed substantial orders for hosiery to be delivered in October, and at the same time made a markdown of stock goods to conform to the prices at which he had contracted for fall. "We bought at advantageous prices," Mr. Gaiser stated.

Following the Wanamaker announcement, The Simons Co., New York jobbers, confirmed a report they had placed an order for 30,000 dozens of full-fashioned which they intended selling for $7.25 to $8.50 per dozen—prices which make the stockings a dollar a pair retailers. Clem J. Busenkell, hosiery buyer for the large jobbing houses of Sullivan Smythfield Co., Philadelphia, a few weeks earlier was quoted as saying prices were at a level where jobbers could again function as distributors and supply retailers with good, attractive dollar numbers.

The Rodgers mill and the Cambria, both in Philadelphia, were among those to swing into the busy column last month. One sells to retailers, the other to jobbers. Each was operating 15 hours a day, employing two shifts. Both had taken orders which, it was stated by the executives, would keep the plants engaged for probably two months, with a likelihood there would be no occasion for any recession in output during the remainder of the year.

Several of the smaller mills in territory suburban to Philadelphia reported sold up of dull silk hosiery, the distribution of which has been steadily increasing as the Westcott Hosiery Mills, Dalton, Ga., continued to add to the list of mills licensed to manufacture under the Westcott patent. In Reading the Oakbrook Hosiery Mills, engaged with two shifts of operatives, were understood to be rushing a large order from a chain store organization, to completion.

Sentiment on the subject of the state of the market and the condition as to stocks continues much mixed, as it has been for some time. While the mills mentioned were operating 100 per cent capacity, some of the larger establishments still were following a curtailment program, and when the Apex closed down for another week, the third for the summer, an official stated that unquestionably "further curtailment is essential."

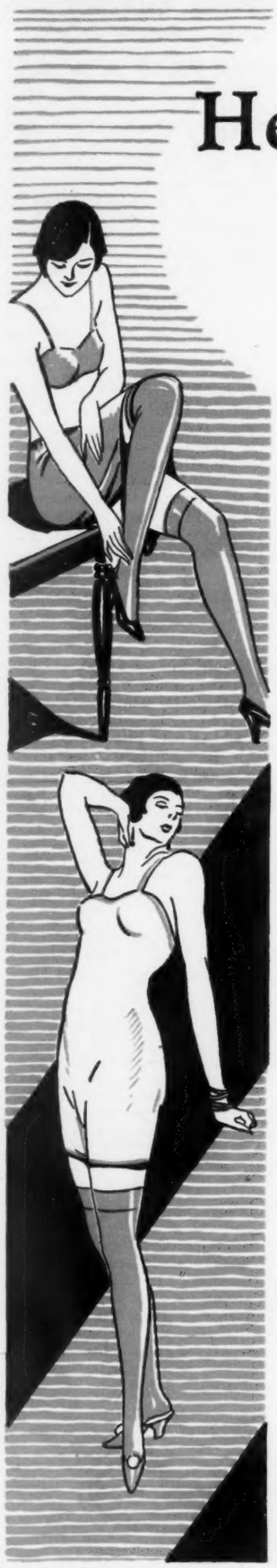
It was a subject of no little comment that while mills in the class of the Berkshire and the Apex were holding output down to more nearly indicated market needs, so many of the smaller and less pretentious plants were shipping out the production of 15 hour days. It appeared that plants were resuming in about the order in which they had become idle—a few here and there accordingly as conditions dictated to executives. As some one remarked while betterment was on the spotty order, "the full-fashioned industry is a long way from turning normal."

Report Interest in Silk Mesh Hose.

According to buyers for the better retail establishments, fishnet hosiery seems to be growing in favor as the summer wanes. The fine mesh, for some time quite the rage, is seen giving way to a much coarser mesh. A line produced on Jacquard machines is making an appeal to certain discriminating buyers for the retail trade. Two net numbers that have been rather widely introduced lately come from, respectively, the mills of the Gotham Silk Hosiery Company and Nickels & Lauber, the latter operating in Philadelphia and in a New Jersey town. A few jobbers who had bought too heavily of silk mesh hosiery last season have been liquidating their holdings, and it is understood spectacularly low prices were accepted, in instances. With these as leaders, says a hosiery department manager, "we expect to increase our sales of course silk mesh stockings for the higher price brackets."

Talk of Black Heel Come-back.

There is perceived an effort on the part of buyers for some of the stores having a full fashionable clientele to induce manufacturers to help revive interest in black heel silk stockings, a few years ago ranking as staple, but now regarded more in the light of a novelty. Innovations, it is pointed out by mill men, might prove a successful and profitable experiment for some manufacturers, but would bring about a more complex situation, since buyers must choose between the grenadine and crepe dull silk and the lustrous tram silk. So many of the somewhat recent innovations have proved failures, say certain of the buyers, that stores would be skeptical of anything that had not been tried out and won consumer approval. Manufacturers with unsold stocks of square heel hosiery are not eager for intrusion by more nov-



Helping You Sell Your Merchandise

FAST selling merchandise combines durability, style and beauty. Sales researches show that durability is the most important of this famous trio of qualities.

Other things equal—if your product has durability, style and beauty—it has an advantage on the sales counter.

Dixie durene gives your goods these qualities—builds strength into your product and, in this day of the dull finish vogue, it adds style and beauty. Let Dixie durene help sell your merchandise.

We invite your inquiry about Dixie durene. Address it to the—

DIXIE MERCERIZING COMPANY

CHATTANOOGA, TENNESSEE

THE FRANKLIN PROCESS
Fast Color Identification Plan

How It Benefits Users of
FRANKLIN PROCESS COLORS

This plan includes full color pages once a month in the leading dry goods magazines, also spring and fall campaigns in the leading dry goods newspapers. There is also the Franklin Process Color Directory listing over 200 firms offering 29 different kinds of merchandise. Over 5,000 copies of this directory have been distributed to buyers to date, on request only.

Because of these activities and an extensive direct mail campaign, Franklin Process Fast Colors, the Franklin Process Label and what it stands for, are known to retailers, wholesalers and cutters.

Converters, realizing this, consult with Franklin Process Company, when styling new fabrics, specify Franklin Process Colors when sending inquiries to the mills and send orders to mills who are known to run Franklin Process Colors.

Many converters and manufacturers specify Franklin Process Colors also because they wish to identify them with the Franklin Process label. This label completes the identification chain from mill to retailer and sometimes to the consumer. This identification and the color satisfaction that follows inspire confidence in Franklin Process Fast Color Yarn Dyed fabrics and thus increase sales for all parties concerned.

When you identify yourself with this fast color plan you are catering to an expressed demand from buyers for fast colors identified with the Franklin Process label. A recent test indicates that 88% of all buyers favor this plan in its entirety.

Details of this test and a complete description of the Franklin Process Fast Color Identification Plan will be mailed on request to any mill executive. Use your business stationery or, if more convenient, use the coupon.

FRANKLIN PROCESS
IDENTIFIED FAST COLORS

Main Office and Plant:
FRANKLIN PROCESS CO., PROVIDENCE, R. I.
New York Office:
40 WORTH STREET
Branch Plants at PHILADELPHIA . GREENVILLE, SOUTH CAROLINA . CHATTANOOGA, TENNESSEE

FRANKLIN PROCESS CO., Providence, R. I.

Please send me, without obligation, details of the Franklin Process Fast Color Identification Plan.

Company.....
Business.....
Address.....
Signed.....*Title*.....

Ad. 363

Fast Color Identity is Now the Master Salesman

WHAT BUYERS SAY ABOUT THE PLAN ▲▲▲

"Thank you for your letter of July 24 together with duplicate copy of Booklet No. 7. We will be pleased to avail ourselves of your offer to send us additional copies.
"The writer believes that the departmental heads will find it very interesting. You may send us ten of these."

Kresge Department Store
Newark, N. J.

"Your letter of recent date, and portfolio received. We thank you very much for remembering us and sending us this portfolio. We think it very helpful in that we have gotten from it the names of several firms from whom we think we may buy novelty cottons."

Mary Cummings
Louisville, Ky.
Designers and Importers

"We think this booklet which you are issuing will not only be of great interest but of considerable service. We would like to put a copy of this in the hands of our salesmen and if you will send to us 20 of these copies we shall be glad to use these for this purpose."

The John S. Naylor Co.
Wheeling, W. Va.
Wholesalers

"This will acknowledge receipt of the new 1929 Franklin Process Portfolio and Directory, for which we kindly ask that you accept our thanks. This will be very useful and helpful to our Division Head and will be the source of greater information along the line of your products."

Sears, Roebuck and Co.
San Diego, Calif.

"We appreciate your letter and the portfolio which we received recently from you. We especially appreciate the directory in this portfolio giving us a list of the manufacturers using the Franklin Process colored yarns. It will be of great value to us.

Davison-Paxon Co.
Atlanta, Ga.

elties just now.

While it would appear the market for fine gauge dull silk stockings is not likely to suffer from overcrowding, it is indicated that there is a surplus of 45- and 48-gauge. Two-thread silk hose of 48-gauge were reported by a manufacturer well toward the end of August as commanding no more than $9 a dozen. That, he stated, was the best offer he could obtain. This was but 75 cents a dozen more than a Philadelphia mill was receiving for 42-gauge silk chiffon with picot top and was, of course, a distress price, having no bearing on market value. Picot 45-gauge is a slow number for some mills specializing in this gauge and rated on a parity with 48-gauge, in matter of demand. Yet a mill selling to large retailers is operating 45-gauge machines on overtime schedule, along with 42-gauge. There is said to be very little 42- and 39-gauge machinery idle.

Chain of Retail Stores to Make Own Line of Stockings for $1.00 a Pair

WHAT BECOMES of chain retail stores operating exclusively in dollar silk stockings? asks traders observing the low regular prices in department stores and the offerings for 85 cents at special sales. A Philadelphia chain organization having ten or twelve stores, some in the fashionable shopping district, is expected to present a sensational solution of the problem. The management is building a factory in the Kensington section and expects to have it in production by January. A dozen or more mills might have been acquired at probably less than the cost of this new plant, but the management of the chain organization says it "has some original ideas about making and selling dollar silk stockings and nothing else." From which it is inferred new 42-gauge long sections will be installed, as one means for economic production and that it is intended to have mass production. The chain sells its irregulars in only a few of its stores remote from the shopping center.

It seems a foregone conclusion that by the time the full-fashioned hosiery industry completes the process of adjustment, numbers of changes not now developed will have been affected, and it would be not surprising to some factors if more chain organizations became the manufacturers of hosiery for their own counters. They would have an advantage in exclusiveness in matter of their innovations, it is suggested, and, assuming managements were as competent as those for individual units among manufacturers, these chains would have a mill profit as well as a store margin. Certain jobbers have experimented with manufacturing, with what result is not known generally, and in retailing circles it is maintained by some that "it would be no wild guess to predict large chains and catalog houses engaging as manufacturers, as separate organizations." The operation of retail stores by one leading Pennsylvania mill was abandoned in the last two years, one store after another being discontinued.

Quissett Mill
New Bedford, Mass.

COTTON YARNS
You Know—

that the cotton yarn field is a specialized one. You undoubtedly know the characteristics of ideal carded, combed and ply yarns. But do you know that Quissett Mills give the most conscientious attention to the manufacture of their yarns—from the cottons to the final inspection?

Do you know that every Quissett package conforms to a very definite and exact standard?

Do you know that Quissett Yarns can be received in record time after ordering because the Quissett Mills are one of the best equipped and organized mills of the country?

WE—naturally—know the cotton yarn field as specialists. Our yarn specialists are specialists in practice as well as in name. Let us handle your yarn requirements.

QUISSETT MEANS QUALITY

Wm. M. Butler, Pres.
Edward H. Cook, Treas. Thomas F. Glennon, Agent

Bemberg Full-Fashioned Affected by Silk Prices

Women's Bemberg full-fashioned stockings, which were accorded a rather hearty reception when first they were offered in large retail stores for a dollar a pair, have been yielding gradually in price and construction to competition with all-over silk full fashioned, for a dollar and less. The first Bemberg full-fashioned to cause a sensation was knitted with cotton top, as at that time the artificial fiber was too costly to be used in the hem. John Wanamaker's caused a sensation in the trade by exploiting Bemberg stockings as presented by a few manufacturers four or five years ago.

When the cotton-hem Bemberg stocking showed signs of lagging after a fairly good session, and had won some friends among those wearing service weight hose, Bemberg-to-top was brought out and revived interest in the fabric. But the line never gathered great strength as a marketing proposition in the big department stores. For one reason, it never had been produced in chiffon weight. Then, not so many months ago a semi-chiffon Bemberg to top was brought out by the Berkshire Knitting Mills and went on sale, again in a Wanamaker store, for a dollar a pair. It was given a good introduction, but did not move satisfactorily.

"Perhaps you are not pushing Bemberg," the sole distributor of the line to retailers suggested to the women at the counters where it was prominently displayed and placarded. "It cannot be pushed successfully against a dollar silk chiffon which we had been selling for $1.65 a pair," was the rejoinder of the sales women. About three weeks ago Wanamaker's cut the price of the semi-chiffon Bemberg-to-top stocking to 85 cents, or three pairs for $2.50. The results are said to be disappointing. Silk chiffons with picot top, costing large stores $8.50 a dozen, less two per cent trade discount, is the answer. This latter stocking goes over the counter for a dollar, and as practically every trader knows, all-silk hose is being sold in the principal cities for as little as 85 cents a pair. Wanamaker's is expecting to shortly offer a German-made full-fashioned stocking knitted of Bemberg produced in Germany. It is of sheer construction, dull luster, French heel, has all of the talking points and is designed to sell for $2.50 a pair.

Bemberg hosiery never had a fair chance in wholesale distribution. The retail price had to be kept down to a dollar a pair, and profits to jobbers were too thin to make the line attractive to them. The Berkshire's price for the semi-sheer is $6.25 a dozen, net, or around $1.25 a dozen less than the former cotton-hem service weight Bemberg.

In the reports of manufacturers to the Department of Commerce for the tabulated statistics each month, Bemberg is accounted for in the classification rayon. The Department's tabulation for June shows reporting manufacturers having produced 73,831 dozens of rayon full-fashioned for the month, comparing with 104,925 dozens in June last year, a decline of approximately 30 per cent. Seamless rayon production fell to 102,665 dozens in June from 183,456 in June last year. Silk and rayon in combination of full-fashioned construction dropped back by more than 60 per cent, and production of the same combination in seamless fell from 116,980 dozens in June of last year to 17,651 in the corresponding month of 1930.

Use More Cotton Rayon Combination.

The statistics of hosiery production for June indicate a severe jolt sustained by rayon, for hosiery purposes, due to the low prices for raw silk and competitive prices for acceptable silk hosiery. But analysis of the figures supplied by manufacturers reveals an increasing use of rayon in combination with cotton, in full-fashioned stockings. The output of reporting manufacturers was 13,402 dozens, comparing with only 1424 dozens by identical mills in June of last year. This increase was, however, at the expense of seamless rayon, and cotton in combination production in June being reported at 12,769 dozens, against 22,229 in the corresponding month of 1929. Thus, it is shown, Bemberg is not alone, as an artificial fiber in receding demand for hosiery.

That manufacturers are aiming at lower fabric cost for full-fashioned stockings is indicated in a showing of 27,785 dozens of silk and cotton in combination produced last June, while in the preceding June the production was only 734 dozen. Here again the increase in full-fashioned of silk-cotton combination was accompanied by a loss in seamless, in this instance from 17,044 dozens a year ago in June to 8,098 in June this year.

Seamless Mill on Non-Stop Schedule.

An oddity in seamless hosiery mill operation was the schedule in effect at the plant of the Weinerth Knitting and Machine Co., in Reading. Until the beginning of August the mill was in continuous production day and night, week after week, with no stop for Sunday. It was explained by Joseph S. Lerch, the general manager, that the uninterrupted schedule was made necessary by the company having a large order for a special number, presumably from either a large department store, a chain store organization or a catalog house. The mill was, at any rate, producing seamless stockings as a continuous performance while probably no other seamless mill was similarly engaged and many of the full-fashioned plants were idle.

General Manager Lerch of the Weinerth is also president of the Laurel Hosiery Mill in Reading, which seldom is in need of orders for keeping the equipment from rusting, and he is president, too, of the Rockhill Hosiery Co., in Rockhill, S. C., which a month or more ago took over the plant of the Charlotte Knitting Co., in Charlotte, N. C.—another northern hosiery mill executive in the procession headed southward, in which John K. Voehringer of Mock, Judson, Voehringer Co., Greensboro, N. C., was a conspicuous figure several years ago, and again this year when machinery was transferred from his Northwood mill in Philadelphia to the Greensboro plant.

#40 UNIVERSAL WINDER

To secure the full advantage of high speed in yarn winding the #40 Machine is constructed with improved doffing of both cones and bobbins.

To remove the full cone from the spindle only one movement of the hand is required.

A carrier takes the empty bobbins to the end of the machine for removal in boxes.

Automatic threading of tension aids production.

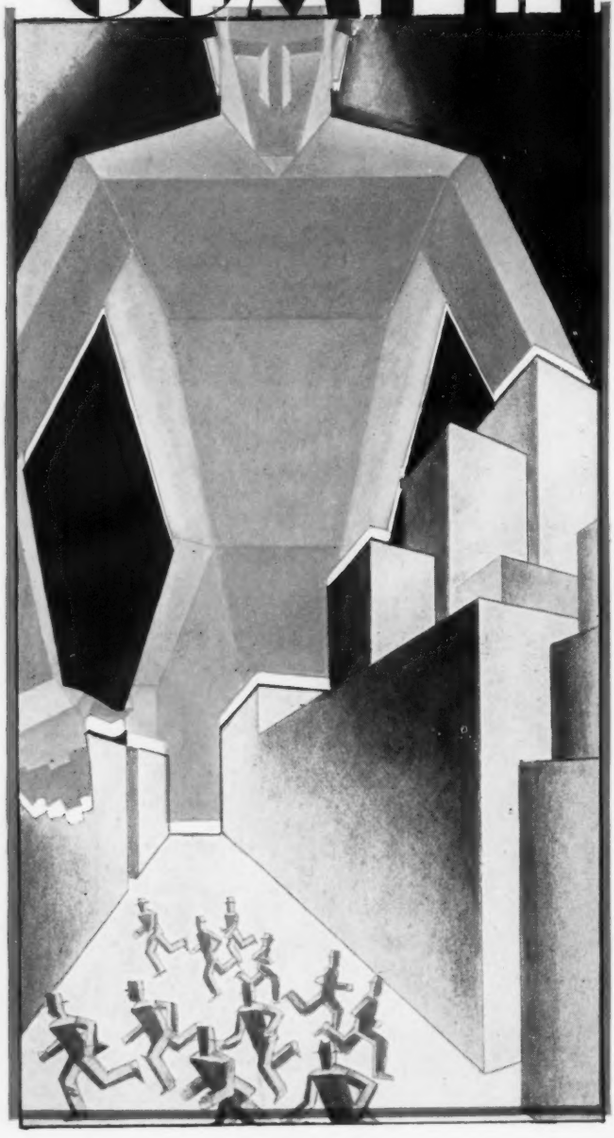
UNIVERSAL WINDING COMPANY

BOSTON

309

UNIVERSAL WINDERS

BE COMPETITION



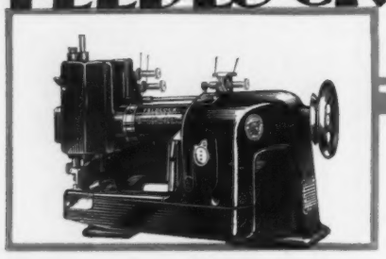
THERE is much truthful talk about keener competition. Extra effort is the order of the day. But the manufacturer who equips his plant with the Feldlock *is* competition.

"The machine that makes production" gives you an important advantage. It produces lapped fell seaming at an unequalled rate of speed. *Volume* enables you to *cut costs* of production.

The Feldlock has *proven* its ability to increase production, while turning out the highest quality of seaming. We believe that is what you want and need. As a first step, may we send you the new Feldlock booklet?

use the

FELDLOCK



"The machine that makes production"

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Write our Home Office for samples made on the Feldlock, or submit your own fabrics for sample purposes.

Sole United States and Canadian Agents for Cornely and Uniart Embroidery Machines.

Consider carefully the work a needle has to do and you will use only genuine W & G.

Some of the more hopeful seamless hosiery mill interests in Reading and roundabout figure on a number of their weaker rivals discontinuing business, and feel that after the weeding out process has continued for a time, there will be profitable business for those which remain, for, it is reasoned, there is a market for good silk hosiery for the price range 50 to 75 cents a pair which it is doubted full-fashioned mills could supply profitably to themselves, while the seamless could. It is observed that there is considerable mortality of seamless establishment, and it is indicated that one in inland Pennsylvania which a few years ago was widely known for high character produce in women's silk lines will shortly liquidate, while one in Philadelphia a few weeks ago passed into a receivership.

Recklessness in Hosiery Production.

Measured by the showings made by the latest official statistics available, there is no major division of hosiery in which there has not been recklessness in matter of production, with the results stocks appeared dangerously large at the time the information was tabulated. Net shipments, new orders and unfilled orders had declined radically at the beginning of summer, comparing with the corresponding period of 1929, about the only increase being on the wrong side—stocks in mills, finished and in the gray, being very much larger. While such showings have been known to the trade with the issuance of monthly reports since the actual beginning of alarm over conditions, it appears they were not sufficiently impressive to influeflnce many manufacturers to turn to a safer course.

Jobbers and retailers since the commencement of recession in prices have been trimming sail, limiting commitments to a point where it became plain they were escaping all responsibility for having merchandise, and making more precarious the conditions existing among first hands. Mills, it is pointed out by factors who frankly admit their part in crowding the markets at a most inopportune time, were the first to feel the indicated decline in values, have been the last to apply a remedy. And some lines are entering upon another season under circumstances that are complained of by mill chiefs at the outset of their selling campaign.

Silk hosiery interests have been inclined to view market conditions generally from their experiences in their particular groups—full-fashioned and seamless. The full-fashioned industry had been expanded the more rapidly and in larger degree than the seamless and ordinarily is assumed to be the harder hit in events leading up to and existing during the adjustment. Statistically, woman's full-fashioned has improved its position in greater extent than women's seamless. And statistics appear to be supported by trustworthy reports of more activity in the full-fashioned group in August than at any time since the start of the depression.

Children's Hose Details Slow; Jobbers Confused by Pattern Varieties

NUMBERS OF JOBBERS who have placed orders for children's hose and infants' socks are reported by manufacturers as so slow with giving them details that some leading mills, while having a satisfactory volume of business on their books, are virtually unable to operate more than a small part of their plants. Jobbers prodded for specifications, have replied in effect that they did not know what to specify; that there are so many designs—and a promise of more coming on the market—as to leave them confused.

Children's anklets have sold well in the stores, it is stated by department heads, while seven-eights and shorter types have lagged. The popularity of anklets for misses and the extent to which they are said to have affected sales of sports lengths is given as one explanation for the tardiness of jobbers with specifications for juvenile lines, misses' in particular. Another is, as stated by an executive of one of the more important organizations manufacturing children's hose, some mills have gone after business with cut prices. This executive states some of his customers have reported lower quotations than the prices in their orders which his mill holds.

A Pennsylvania manufacturer near Philadelphia has thus far been able to turn his back on price cutters and buyers who make a practice of playing one mill against another in a slow market. His line is sold under the trade name "Nuweave," and jobbers who do not accept it so branded are not accepted as customers. The manufacturer maintains his established standard of quality, adheres to his price and, no matter how much less copies of his patterns may be quoted, the mill continues busy with keeping production abreast of demand for its brand, from the list price of which there is no departure. The mill product is largely of socks and 3-4 and 7-8 length hose. The concern is supplying an object lesson for some of the more pretentious makers of children's lines.

Competition Keen in Half-Hose.

Men's half hose have been overdone in the matter of variety of colors and designs, is a complaint among buyers for the trade, conditions in this group being not dissimilar to those in the children's division. Especially have men's socks of silk and rayon in combination proved disappointing as a summer venture. Silk and cotton and rayon and cotton as combinations have done better. Solid rayon numbers have had a better sale, relatively than almost any of the combination yarns containing rayon. The inference of analysts is that retailers have been buying for price. It transpires, in any event, that, excepting the higher priced lines, sold mainly in the better man's shops, competition continues keen to almost the point of demoralization.

Men's solid silk, both seamless and full-fashioned, are reported by the comparatively few manufacturers still producing the lines to be in increasingly light call. Mercerized half-hose and cheaper cotton

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lines are regarded as about holding their own. Wool mixture socks have had about last year's stage of business. A fair amount of advance orders for these having been placed is regarded as indicating a returning jobber confidence. Women's wool mixtures appear not quite so promising as last year at the time jobbers were detailing fall orders. Buyers for the trade ascribed the falling off to the fact that there were light carryover stocks in the hands of a number of retailers, and in part to lower prices having made silk full-fashioned hosiery more attractive.

Commenting upon statistics showing an exceptionally healthy situation in athletic hosiery, it is stated by several mill agents that conditions in this group are really better than indicated in the reports of manufacturers. These reports, say hosiery mill men, do not embrace the operations of manufacturers of sweaters who are knitting golf hose to match.

Underwear Trading Again Held Up But Causing No Surprise to Mill Men

MANUFACTURERS of cotton underwear, having discounted the effect of the government crop report on prices of cotton commodities, were not surprised after the figures relating to yield and condition came out, that jobbers as a class purposed further postponement of orders. Many of the manufacturers looked for an estimate of over 14,000,000 bales and let it be known when they were declining to make commitments for raw material for an actual production period.

Interest in men's heavy weight cotton ribs receded somewhat when it came to be the general supposition that the opening for light weights for the next season would be delayed. The proposal for postponing the formality until after Labor Day was being considered in advance of the cotton crop report, as declines in the raw fiber and yarns were regarded generally as indicating spinner distrust of news of a bullish character coming out.

A six cent drop in cotton since opening prices were named last year meant this year's opening would, necessarily, be on a much lower price level. Subsequent developments are accepted generally as vindicating the postponement. But as some suggest the week beginning with Labor Day for going to the trade with samples and prices, others want to know why, since another cotton crop report will be due September 8th, not wait until the second week of the present month. This was not unanimously favored, as to open so late would afford opportunity meanwhile for many manufacturers to give buyers a peep at their samples and quote under-cover prices. It was thought that if the manufacturers of bal briggans turned out in force for the meeting of their group called for August 28, some sort of order might come out of the chaos which made the meeting desirable.

Market conditions for underwear certainly were not improved by the drouth and protracted period of sweltering temperatures. The situation was made the more serious for jobbers and retailers in the event of an early fall and unexpected declines in temperature. The merchants admitted they were taking a long

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Chemicals of Originality
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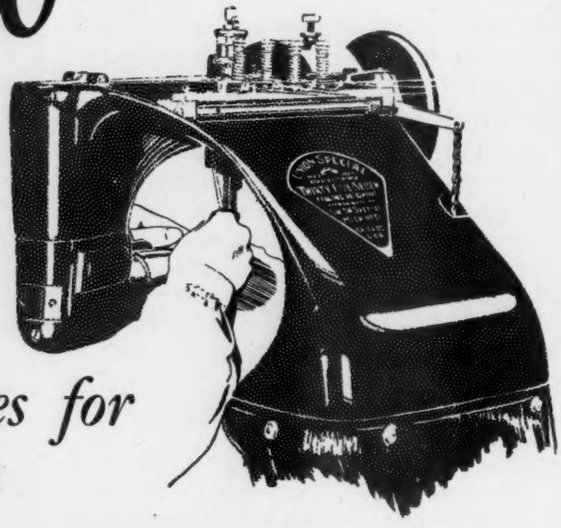

Three "Thirty-Five-Sevens" REG. U. S. PAT. OFF. equal output of five former machines for making pajamas

BY replacing five older felling machines with three new "Thirty-Five-Sevens", an eastern manufacturer* of pajamas has reduced power, space, and machine time costs by 40% and at the same time has secured a production volume fully equal to the combined output of the five former machines. In addition to this saving, the new machines eliminate the tacking operation on pajama coat cuffs which results in a direct saving of three cents per dozen. This company produces 1000 dozen pajamas per week or approximately 55 dozen coats per day on each of the "Thirty-Five-Seven" machines. On the basis of some 50% of the coats being made with cuffs, the three machines can be credited with a direct saving of $780 per year on this one item.

If you are interested in reducing your production costs and securing finest quality work write for complete description and data on the Class 35700 feed-off-the-arm felling machines.

**Name on request.*

Makers of special sewing machines for all manufacturing purposes.

UNION SPECIAL MACHINE COMPANY
400 North Franklin Street
Chicago, Illinois

chance, but solaced themselves with the reasoning, "Well, we always got the goods when we wanted them in other years and guess we'll not be left this year."

Manufacturers of the more representative lines of women's rayon underwear have been disposed to not quote, except to buyers who could not be suspected of trying to obtain prices for the purpose of inducing lower quotations from rival mills. The situation in rayons was the more wobbly as a result of reductions in prices of rayon yarns and intimations of a price war looming. It was known to some of the leading producers that competitors were quoting on inferior fabric, in some instances, and out for business regardless of going below the profit line. Thus, it frequently happened that manufacturers refused to quote on rayon underwear except to customers on their books regularly.

Some of the more strongly established mills are booking a fair amount of business in women's rayons and cottons, rayons being bought usually for 60 to 90 days. Jobbers taking women's cottons for immediate are, generally speaking, buying samples of spring lines for their road men. Formerly, buying cottons each six months, jobbers' present policy is to order as needed.

Bathing Suits in Attractive Models On the Market for the 1931 Season

INTEREST IN KNITTED OUTERWEAR is and for some weeks has been centered in bathing suits. The lines of most mills were opened formally around the middle of August. Samples were attractive, as had been demonstrated in private showings to favored buyers, and prices were lower than at the opening a year ago, by around 10 to 12 per cent. It was difficult to make comparison, as some manufacturers who have been using two ply worsted yarns this year are on the market with singles. The suits therefor are of somewhat lighter weight. It was the impression in the trade that, because of the lower cost of yarns, superior suits would be priced at this year's commonplace, and identical models around 12 per cent lower. Many of the mills made up their samples from worsted zephyr, with the intention of making it standard. It was assumed that in the event sales drag for weeks following the opening, and price competition is resorted to, the yarn specifications will be subject to revision.

Practically all of the manufacturers of standard type bathing suits will knit the rib stitch. A few are sampling with jersey cloth, liked by manufacturers because it is well adapted to styling. One line of women's jersey cloth suits is designed to be sold in retail stores for $10 per suit. This model is in fancy applique and insert designs. Solid colors will prevail in men's and boys' rib suits, with a variety of color in stripes.

Several lines of women's suits have back and trunk in contrasting colors. It is expected the deep cutout for the back, to provide for a maximum covering of tan, will be as popular as last year. Some manufacturers are showing less daring models, with a modified cutout for back and arms. But there is going to be no unnecessary yardage of fabric in any of the lines shown at the opening. One Philadelphia manufac-

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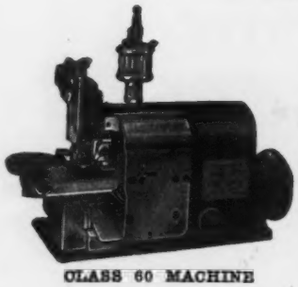
——200 VARIETIES FOR 200 PURPOSES——



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For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC—For two-thread **FLAT SEAMING** on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

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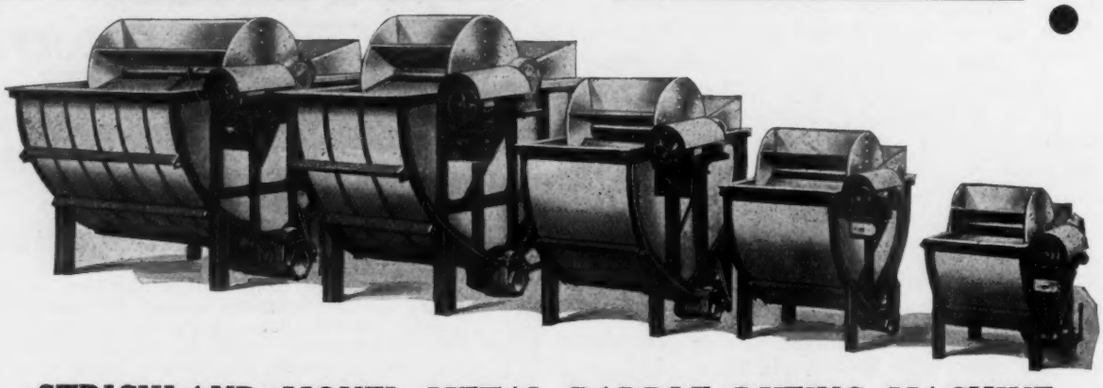


STRICKLAND MONEL METAL PADDLE DYEING MACHINE, Motor or Belt Driven, in a Sturdy Cast Iron Frame

Hosiery dyers will welcome the corrosion resisting cast iron frames, mono-cast side frames and cast iron angle end frames.

These frames are made extra heavy and rigid to reduce vibration. Motor, belt or chain drive at your option. Capacities 5, 10, 25, 50 and 100 lb. sizes. Other sizes built to order.

Write today for price and delivery.

STRICKLAND PATTERN WORKS
Chattanooga, Tennessee

turer, as if "putting one over" on competitors who had been quoted as using yarns of finer count and out of finer grade of wool than formerly, announces his premier line of bathing suits will be knitted of "imported" worsted yarn.

The Goodwear Knitting Mill is showing a patented bathing suit, which has a stretch of eight to ten inches, the seams giving and coming back with the fabric generally. It is knitted rib stitch, of fine two ply worsted yarn. So elastic is the suit that a 160-pound man six feet in height can disport himself in a boys' size 34, as has been demonstrated, the demonstrator ordinarily wearing size 42.

Business in sweaters is and for some time has been draggy, jobbers being slow with fall orders and tardy with shipping instructions. Manufacturers are making up no sweaters for stock, they state, but would be willing to do so if jobbers bought for say 75 per cent of their prospective needs. Retailers will buy sweaters very late, is general impression, and unless jobbers increase their speed early this month hardly a manufacturer will be able to deliver much more than one half of normal needs.

Among the Knitting Mills

ALABAMA HOSIERY MILLS, located at Decatur, Ala., are installing additional machinery to double their output. They will also increase the number of employees from 100 to 300 during the next year. Upon completion of the expansion program it is reported that approximately $250,000 will have been spent.

William Carter Co., Barnesville, Ga., manufacturers of knitted and rayon underwear, have reopened their plant. They employ about 300 girls and women.

Golden City Hosiery Mills, Villa Rica, Ga., has been newly equipped for production of women's hosiery by the installation of 50 circular knitting machines. It has also been equipped for dyeing and finishing.

Rock Hill Hosiery Co., of Rock Hill, S. C., recently leased the Charlotte (N. C.) Knitting Co. and started operations with a curtailed force. However, the number of employees will be gradually increased. Both plants will be in charge of Chas. Okey, present manager of the Rock Hill Hosiery Co., for the manufacture of full-fashioned silk hose. Finishing for both plants will be done in Charlotte.

The Golden Belt Mfg. Co., Durham, N. C., recently installed 10 additional full-fashioned silk hosiery machines. This installation brings their total number up to 106.

Conover Knitting Mills and Longview Knitting Mills, of Hickory, N. C., have consolidated under the name of Shuford Hosiery Mills and now operating in a new building with the combined equipment of the two mills.

Marion Knitting Mills, Inc., Marion, N. C., are adding ⅓ more floor space to be used for additional machinery.

Lyerly Full-Fashioned Hosiery Mill, Hickory, N. C., are having their plant equipped with Bahnson humidifiers, furnished by the Bahnson Co., of Winston-Salem.

O'Brien Hosiery Mills Co., Winston-Salem, N. C., have doubled their production by the purchase of additional split-foot machines from the Hemphill Co., of Pawtucket, R. I. They will manufacture 240 needle half-hose.

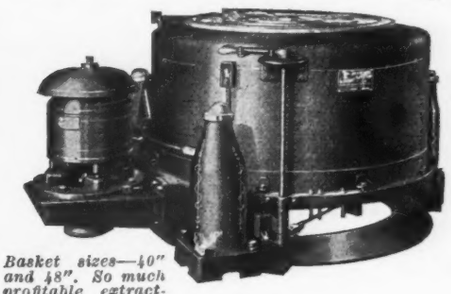
It has been announced that the Perfection Hosiery Mill, Burlington, N. C., will be equipped with new machinery just as soon as insurance adjustments are completed. This mill building was burned in March.

Mock, Judson, Voehringer, Inc., are moving additional machinery from the Philadelphia plant to the Greensboro (N. C.) plant. This will increase the production of the latter plant 20 per cent, as well as increase their operating force. Work of installing this machinery is to be completed about the middle of September.

J. R. Killian has contract for erection of mill buildings for Hollar Hosiery Mills, Hickory, N. C., at a cost of $20,000. A sprinkler system will be installed.

Ellis Silk Hosiery Co., Charlotte, N. C., will install 12

When you get acquainted with O-T Extracting



Basket sizes—40" and 48". So much profitable extracting in so little space.

When you chalk off the O-T's modest floor dimensions—when you check O-T production against O-T square inches—when you look at that low-set, accessible basket, *silk-finished*, with *monel metal* side sheets . . . then you will understand why the big-capacity O-T is standard equipment in so many leading textile mills! Write for the O-T facts.

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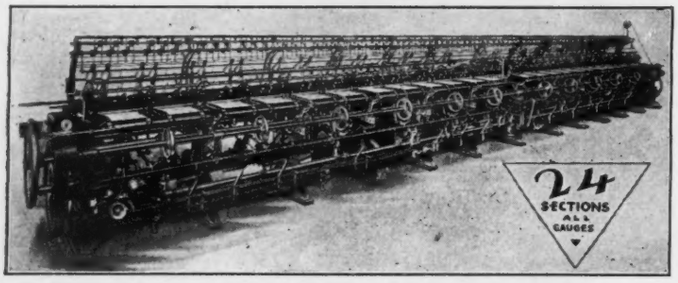
HIGH SPEED
65 COURSES PER MINUTE

FULL FASHIONED HOSIERY MACHINES



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--or we might say "quality quickness". In other words, Schubert & Salzer, Full Fashioned Hosiery Machines unfailingly give you better quality of fabric, and speed of production.

Probably you have seen similar statements by manufacturers of competitive machines. Words count for little, it is proof that really counts. We will gladly furnish proof in the form of an actual demonstration.

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ALFRED HOFMANN
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Automatic-Adjustable STEEL STOOLS

Equip your offices, mills, factories and draughting rooms with these up-to-date stools and seating equipment. May be adjusted to any height in one second! Simply lift up on the seat and it locks in place!

New Catalog on Request.

Comfortable back rest and adjustable foot rest optional. 3 and 4 legged models. 20 styles to choose from. Swivel attachment at small extra cost.

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Complete information regarding Fade-Ometer and its applications will gladly be sent you. We are also makers and sole distributors of Launder-Ometer—the Standard Machine for Laboratory Washing Tests.

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Perfect Factory Counting
Without mental effort
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new machines for the manufacture of full-fashioned rayon hose, at a cost of $10,000 each. These additional machines will double the capacity of the plant.

Officials of Browning Hosiery Mills, Inc., Chattanooga, Tenn., manufacturers of 240 to 260 needle hose, silk and rayon mixtures, operating 200 knitting machines, announce that the textile industry is showing a revival of activity and believe that Fall orders will cover losses sustained earlier in the year.

Cadet Hosiery Co., Inc., Columbia, Tenn., has installed 25 additional full-fashioned machines. These will be put in operation at the earliest possible date.

To Determine Mill Rates

MANUFACTURERS operating non-union and open shop full-fashioned hosiery mills in and adjacent to Philadelphia have started a movement for ascertaining the difference in mill wages in the territory of which Philadelphia is the center, and in other localities. Action to this end was taken at a meeting on August 15, under the auspices of Managing Director C. Marlin Bell of the Philadelphia Textile Manufacturers' Association. Those at the meeting embraced only members of the association. It was stated specifically, and so expressed in a formal resolution, that the manufacturers connected with the wage finding movement will strive to avert antagonizing the hosiery union or unionized mills.

The presiding officer at the meeting was G. C. Aberle, general manager of the H. C. Aberle Co., who also is a member of the organization committee engaged in forming the Full-Fashioned Hosiery Exchange, with Julian Armstrong, Chicago, director of organization. It is expected the latter body will begin to function late this year, in efforts to stabilize prices and stamp out unethical trade practices, and that by that time the non-union or open shop full-fashioned manufacturers will have obtained the desired information as to wages. If performance shall come up to the expectations of promoters of the two movements, the full-fashioned hosiery industry, it is confidently believed, will be less liable to the ills from which it has been suffering these several months.

Anderson Describes Fidelity Patent

UNITED STATES PATENT 1,772,400 was issued on August 5th for a fabric which the Fidelity Machine Company of Philadelphia has been producing since application for the patent was filed several years ago and which has come to be widely known in the hosiery trades. The patent was issued to Walter Larkin and assigned to the Fidelity Machine Company, whose president, H. W. Anderson, points out that as in the case of the pointex heel and the Westcott Hosiery Mills grenadine stockings, it applies to merchandise rather than to the machine which produces the merchandise. The patent allows the inventor's eleven claims.

The merchandise that is affected by the patent, Mr. Anderson points out, is all forms of knitted rib fabric made tubular having the characteristic wrap stitch. The products of this fabric directly affected, President Anderson proceeds to show, are tops and cuffs of infants', children's and sports anklets, bathing suits and knitted underwear and trim for knitted outerwear. An analysis of the claims allowed, he says, indicates, briefly, the following is protected by the patent:

"A new article of manufacture comprising tubular knit rib fabric having inside and outside wales and the designs formed on the said outside wales and composed of a plurality of different independent threads respectively, plaited on successive immediately adjacent wales."

Mr. Anderson suggests that in view of the license agreement effected between the Fidelity Machine Company and each the Phoenix Hosiery Co., the Allen A Company and Infants' Socks, Inc., the merchandising of their lines seems likely to afford an interesting study for the trade not licensed to produce the fabric covered by the patent.

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and wooden boards.

We serve the best mills—send a request for list and same will be forthcoming.

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Use
FARBESOL
for finishing all grades of silk, rayon and cotton fabrics

FARBESOL is a specially sulphonated olive oil (patent applied for) which eliminates odor and imparts an unusual degree of softness and body to the goods.

NEUTRASOL PRODUCTS CORPORATION
41 Park Row New York City
Southern Representative:
L. M. Bowes, Cutter Building, Charlotte, N. C.

The YARN MARKET

Philadelphia, Pa., August 16th, 1930.

AS WAS POINTED OUT in the report here last month, conditions are not always as bad as they might seem at first glance. and, generally, that which viewed from one angle gives us a rather dark picture, may, if viewed from another angle, register very differently. This fact was brought to light in last month's report when it was related that experienced yarn men had looked upon the present period of depression as being a real help, due to the fact that it had caused a large number of buyers to take a careful survey of their distributive methods, which in turn would enable them to eliminate a lot of lost motion. This would prove advantageous, both from the standpoint of the seller as well as that of the buyer.

The first week of the present report period started off rather slow. A good many buyers were trying to use small downward fluctuations in cotton quotations as an argument in obtaining consequent reduction in carded yarn rates. The majority of spinners, however, refused to budge, pointing out that for the past several weeks they had been doing business on a 10 cents per pound basis for cotton. Dealers said that spinners had not accepted business at this low rate as a result of cheap cotton but that they had been prompted by several different reasons. During the latter part of the week trading experienced a very decided upward trend. Some felt that this might mean the commencement of a rather concerted yarn buying movement, more or less looked for in order to cover deficiencies discovered by several in making their mid-year inventories.

During the next week yarn houses showed a tendency to adhere more closely than had been the case during the past few weeks to quotations based on the asking prices of their spinners. It appeared that a large number of spinners were rather optimistic in their outlook for Fall business, and they expressed their desire for retrieving some of the ground lost during the earlier months of the year. More or less counterbalancing this optimism, many also expressed the prediction that many yarn mills would show a rather large deficit for 1930 operations.

It was the belief of several prominent yarn men that the Government crop report forecasting 14,362,000 bales would place yarn rates under additional pressure. Following publication of this report only a few buyers showed interest enough to express their price ideas. Several stated that they believed the report to be issued next month would represent a much smaller forecast, as the drouth period would have had a more telling effect by that time.

Most of the business handled locally during the past week was for immediate delivery and the prices at which the business was transacted were very low. Yarn distributors pointed out that spinners could not possibly make anything out of accepting business on such a low scale. In spite of this, though, carded yarn rates were a half cent to a cent a pound lower at the close of this week than they had been at the close of the previous week. The prices published at this time were below those regarded by many spinners as their minimum.

It was evident during the next week that the issuance of the government's crop estimate had caused spinners' offers to be out of line with buyers' bids. The latter only cared to do business on a hand to mouth basis, and were seeking distress yarns that were one to two cents per pound lower than prices asked for by distributors. Most of the yarn houses, while anxious to do business, seemed to be more in sympathy with the prices asked by spinners than with those offered by consumers.

Philadelphia prices on August 13th follow:

Single Skeins.

4s to 8s	21	10s	21½
12s	22	14s	22½
16s	23	20s	23½
24s	26	26s	27
30s	28		

Single Warps.

10s	21½ @22	12s	22 @22½
14s	22½ @23	16s	23
20s	23½	26s	27 @27½
30s	28½		

Two-Ply Skeins.

8s	21	10s	22
12s	22½	14s	23
16s	23½	20s	24
24s	26½	26s	27½
30s	28½ @29	40s	36½

Two-Ply Warps.

10s	22 @22½	12s	23
14s	23½	16s	23½ @24
20s	24 @24½	24s	26½ @27
26s	27½ @28	30s	29 @29½
40s	37		

Frame Spun Carded Yarn on Cones—Cotton Hosiery Yarn.

8s	21½	10s	22
12s	22½	14s	23
16s	23½	18s	24
20s	24½	22s	25 @25½
24s	26 @26½	26s	27½ @28
30s	29½	40s	37
30s dbl. carded	33½	30s tying in	29 @29½

Two-Ply Combed Peeler Skeins and Warps

8s to 16s	37	20s	39
24s	40	30s	43
40s	45	50s	51
60s	58	70s	68
80s	80		

Single Combed Peeler Yarn on Cones.

18s	34	24s	37
30s	42	36s	44
38s	45	40s	46
50s	50	60s	58
70s	68	80s	79

Mule Spun Carded Yarn on Cones.

10s	27½	12s	28
14s	28½	16s	29
18s	29½	20s	30
24s	33	26s	33½
30s	34½	40s	41½

Mule Spun Combed Peeler Yarn on Cones.

10s	35	12s	36
14s	37	16s	38
18s	39	20s	41
22s	42	26s	43
28s	44	30s	45
36s	48	38s	50
40s	51		

Two-Ply Mercerized Yarns.

20s	54	26s	56
30s	57	36s	60
40s	63	50s	67
60s	76	70s	88
80s	1.00	90s	1.35
100s	1.65		